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ORGANISING BEEKEEPERS TO GENERATE INCOME FROM BEE PRODUCTS IN SOLYA WARD, MANYONI DISTRICT TANZANIA

JOSEPH JOHN

PROJECT SUBMITTED IN PARTIAL FULFILLMENT FOR THE REQUIREMENTS FOR THE DEGREE OF MASTER IN COMMUNITY ECONOMIC DEVELOPMENT OF THE OPEN UNIVERSITY OF TANZANIA

2014

CERTIFICATION

I, the undersigned, certify that I have read and hereby recommend this project for acceptance by the Open University of Tanzania in partial fulfillment of the requirement for the degree of Master in Community Economic Development (CED).

……

Dr. Felician Mutasa

(Supervisor)

……

Date

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DECLARATION

I, Joseph John, do hereby declare to the Senate of Open University of Tanzania that this project is my own original work, and that it has not been submitted for the similar degree in any other University.

…….

Signature

……

Date

DEDICATION

This work is dedicated to my entire family members, especially my beloved wife Emmaculata Ignace, our beloved daughter Queen Jessica, my beloved father John Lekseu, beloved mother Veronica Mshiki who really missed by company and support for a long time and whose their care and encouragement propelled me to accomplish my studies.

ACKNOWLEDGEMENT

First and fore most I would like to thank the Almighty Heavenly God through His beloved Son Jesus Christ to whom by the Holy Spirit gave me confidence, good health and sound mind which all have enabled me to carry out this project and accomplish my studies. My sincere thanks are due to Dr. Fecilician Mutasa who guided me technically since the beginning of this project till the accomplishment.I am obliged to the Open University of Tanzania lecturers for their guidance, commitment, technical and materials support for successful attainment of this project.

I am so delightful to Solya ward community members especially the beekeepers group for their active participation since the beginning of this project to date. My special thanks are due to Host organization, World Vision management under the leadership of Mr. Johnson Robinson, Licky Chalamila and Mkama Nangu. Their constant availability and cooperation are highly valued since they contributed into the realization of this work.

I appreciate the good support I received from my fellow staff at work in particular Mr. Laurent Ngoyo and Modesty Kessy for their encouragement and carrying my duties in my absence. Last but not least, I do send special thanks to my lovely wife Emmaculata Ignace, for her valuable moral and technical advice in compilation of this paper. I am indebted to the whole family for accommodating and bearing with me during the whole time of schooling and project compilation. Mayour Lord Jesus Christ bless you all.

ABSTRACT

Beekeeping is a livelihood improvement potential that is yet to be fully utilized in most rural areas of Tanzania. Majority of rural communities practice beekeeping mainly for domestic consumption and rarely for commercial purposes. This potential (beekeeping) has failed to improve beekeepers' income due to inadequate knowledge and skills among the beekeepers in processing bee products. As a result, honey produced in rural areas does not meet minimum standards required at national and international market. However the challenges in bee products presentation and market issues, beekeeping has remain among the common interventions practiced in rural areas because it is easier to manage compared to other activities like farming or livestock keeping which require some big initial and management cost. Hence, through capacity building, beekeepers can develop the necessary attitude, knowledge and skills for improving bee products as an economic enterprise. After community needs assessment which involved Solya ward beekeepers and non-beekeepers in the area, the study on designing and implementing a project for improving capacity of beekeeping group in processing and packaging of bee products was prioritized. The target group has 40 members and it is located at Solya ward, Manyoni district in Singida region. The overall objective for establishing the project is to establish a reliable source of income generation to beekeepers through improving the quality of bee products. In achieving this objective, capacity building on bee products harvesting, extraction, processing and packaging, marketing and group management have been emphasized. These training sessions and materials equipped have enabled the beekeepers from Solya ward to have a viable project for increasing their income.

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LIST OF ABBREVIATIONS

ADP	Area development program
CBO	Community based organization
CAN	Community Needs Assessment
DRC	Democratic republic of Congo
EAC	East African Commission
EC	European Commission
EIA	Environmental Impact Assessment
FBD	Forest and Beekeeping Division
FMNR	Farmer Managed Natural resource Regeneration
HMF	Hydroxy-Methyl-Furfuraldehyde
MRL	Maximum Residual Limit
NBS	National bureau of statistics
NGOs	Non Governmental Organizations
PRA	Participatory Rural Appraisal
PSPR	Participatory Self Review and Planning
SIDO	Small Industries Development Organization
SPSS	Statistical package for social science
TAWIRI	Tanzania Wildlife Research Institute
TBS	Tanzania Bureau of Standards
TEAM	Tanzania Empowerment ADP model
TFDA	Tanzania Food and Drugs Authority
TOTs	Trainer of trainees
UK	United Kingdom

URT	United Republic of Tanzania
US	United States
VEO	Village executive officer
VEOs	Village Executive Officers
VFT	Vision Fund Tanzania
VICOBA	Village Community Bank
WVT	World Vision Tanzania

CHAPTER ONE

1.0 PARTICIPATORY NEEDS ASSESSMENT

1.1 Introduction

In Tanzania majority of people live in rural areas where there are plenty of resources like land, forests, minerals, various animals and plants. Despite of having all these resources large number of people in rural areas are poor or cannot afford basic needs like food, shelter and clothes. There are many reasons behind this and among them is the fact that they have not utilized well those resources to generate the income which could help to settle for the mentioned needs. Little is done or has been done to ensure that community members utilize well the available resources. Failure to utilize well the mentioned resources in rural areas is caused by many factors where by some are within the capacity of community members themselves and others are related to policy issues which affects all people both in urban and rural areas.

Most of the people in rural areas like Solya ward haven't taken adequate self-initiative to invest in the above resources and sometimes when they invest they do it traditionally. For example in rural areas majority of people do farming as part of their culture to ensure they get just food and less is done to improve production in this sector so as to increase value and win good market for produces produced. This has resulted to low productivity in households/families which lead to frequent shortages of food in the country as whole. This situation forced the government to use a lot of money to buy and supply food which could be produced by the same people.

The government and other development actors have frequently failed to address the needs of rural people due to several factors and among them is failure to involve the

same community members in identifying appropriate projects/interventions which builds on the local available resources. Some community based projects are influenced by few individuals or donors (top down approach) without the concern of targeted beneficiaries whereby at the end they leave little or no positive impact to the same beneficiaries.

In some rural areas like Solya ward, community members have managed to utilize the available resources to establish some income generating activities like bee keeping which is taking the advantage of available vegetation. However they do not get the intended income which could enable them to meet their basic needs simply because they don't have the appropriate knowledge of handling them after harvesting. Post-harvest handling involves the use of appropriate techniques in processing, packaging and storage which all add value to the product to attract good prices in the market. These techniques also increase the shelf life of products where farmers can access and utilize their processed products beyond the harvesting seasons.

Processing is all about changing the form of the product and the procedure involved can lead to more than one product. For example when you process honey you can get purified honey and waxy which has various uses like the manufacture of cosmetics, candles, foundation sheets for hives, medicines and polishes. All these are sold separately as different product though they are from one source. These different products enable the farmer to have diversified sources of income. Bee products have a great market inside and outside the country for example in years 1996 and1997, Tanzania exported 395 tons of waxy and 2.46 tons of honey annually worth $

1,019,020 and $ 2,058 respectively (NBS, 2007). That amount is very small compared to the capacity of the country to supply if appropriate strategies would be employed right away from production to processing. Economists believe that the amount would increase by 50% if the beekeeping potential were optimally developed (Mihambi J 2012).

Most of bee products do not reach the external markets because they are not processed after productions. Majority of beekeepers from rural areas after harvesting the honey, they sell it at a cheap price while in raw/unprocessed to the middle men who process it and sell to the big cities like Dar-es -salaam, Mwanza, Arusha and nearby countries at higher prices compared to the one offered to primary producers. This scenario is also found in Solya ward as beekeepers harvest their honey and sell it in raw, and then get the income which doesn't reflect the production cost for maintaining the hives leave away meeting their basic needs.

1.2 Solya ward Community Profile

Solya ward is among the five wards of Kilimatinde division, Manyoni District in Singida region central part of Tanzania along the Singida Dodoma high way. It lies between Longitude 34^0 50' E to $35^0$15'E and Latitude 5^0 32'S to $6^0$15'S. The average temperature ranges between 19^oC to 29^oC in the highlands (i.e. upper areas of the Great Rift Valley escarpment) and between 19^oC to 40^oC in the low lands at the bed of the Great Rift Valley while annual rainfall is 400-700 mm. The ward is comprised of two villages namely Solya and Kilimatinde. According to the NBS 2012 census, the ward has a total population of 4,372 people where by 2,109 and 2,263 is for males and females respectively. These two villages are too close and they share

same social and economic values.

The livelihood of people in this area depends on agriculture, livestock and bee keeping. Major crops grown include sunflower, millet, groundnut and sorghum. Also fruits like mangoes do well in some parts of this area and other common wild fruit varieties. Natural vegetation in this area is a mixture of shrub and grasses together with natural trees which produce flowers favorable for bees. Animals kept include cattle, cow and goats; poultry are kept and do well also. Majority of community members in this area are members of local saving groups known as VICOBA. Through this scheme they normally get some capital for running their petty businesses and other income generation activities. Not only these but also they get some cash for settling school fees for their children and handling some emergences like transport and hospital bills in case their family member fell sick.

1.3 Community Needs Assessment

A community needs assessment is a way of gathering information about a community's opinions, needs, challenges, and assets used to determine which project(s)/intervention(s) will meet the real needs of the community. The needs assessment is very essential step in designing any development project as it serves several purposes such as identifying the resources available in a particular community. Also it helps to determine potential concerns or problems community face in their day to day life. In other words needs assessment can be taken as the process of identifying and analyzing "gabs" between current situation and desired situation. The difference between the current situation and desired one must be measured to appropriately identify the need. The need can be an aspiration to

improve the current performance or to rectify a deficiency

Needs assessment is also part of planning process, regularly used for improvement in individuals, organization or communities. It can come up with inputs to refine and improve a product such as training or service to the client. It is an effective tool to clarify problems and identify appropriate interventions or solutions (Shaughnessy M, 2008). Additionally it helps in gathering the appropriate and sufficient data that informs the process of developing an effective product that will address groups' needs and wants. This is of paramount because in order to have a viable development project it is so necessary to have accurate, reliable and usable data that reflect the needs of the target community. Participation of community in needs assessment is very crucial so as to get ideas which present the actual needs, where at the end project ideas and objectives should base on those needs.

Participation of the targeted population or community is highly encouraged so as to win their commitment (ownership) which later will result to sustainable project(s).Furthermore needs assessment also provide the information or data which is very essential in developing monitoring tools and indicators to track the project progress and decision making purpose. Needs assessment for gathering important information for establishing this project was done in a participatory way where community members took part fully in all discussions to identify their needs. Various development actors in the community review and give comments on the identified needs and the priorities. This process based on the fact that to have a successful project it is of paramount primarily to have an awareness of the project

setting based on the community needs assessment. Having knowledge of this fact, needs assessment was conducted to identity various problems in the community and agree which intervention or project will address them.Situation analysis was done at local level as the way of building a foundation for good decision making on project priorities and the use of limited resources. It is highly recommended to carry out situation analysis before attempting to invest any resource toward problem solving because it offers an opportunity to understand the dynamics of the community; it gives clarity on social, economic, cultural and political conditions.

Situation analysis also intends to give an initial opportunity for people's participation in all project activities and enables the definition of community problems and solutions. Participation of community members at this stage is essential as it is believed that needs are better attended if the targeted community feels that they have been meaningfully involved in gathering data, identifying the assets analyzing and interpreting the data and communicating the results. Involvement of community widely leads to a greater sense of ownership of the process which results to commitment to the priorities that are identified in the priority setting process. As it is well known that situation analysis includes the identification and definition of the characteristics and problems specific to certain group(s) of people in the community, it was done by collecting information necessary to understand the community in general and different groups within the community.

1.3.1 Objectives

1.3.1 Overall Objective

Assess the contribution of bee products to the Solya ward beekeepers' income.

1.3.2 Specific Objectives

i. To identify different sources of income of Solya ward beekeepers

i. To assess awareness of bee keeping techniques and bee product(s) value addition among the beekeepers.

ii. To identify the availability of market for bee products.

1.3.2 Research/CNA Questions

i. What are your main sources of income?

ii. What challenges you face in attempting to process or add value to your bee products?

iii. What are other valuable products obtained from honey processing?

iv. What factors hinders the market of your bee products?

v. Who are the main customer(s) of your bee products?

vi. What is the quantity of honey harvested per year?

1.3.3 CNA/Research Methodology

This section describes how the research was designed, sampling techniques and data collection methods.

1.3.3.1 Research Design

A cross sectional design survey was used to pick the sample. This design is used for a study that collects data on relevant variables one time only from a variety of people, subjects, or phenomena. A cross-sectional design provides a snapshot of the variables included in the study, at one particular point in time. It may reveal how those variables are represented in a cross-section of a population (Kombo and

Tromp, 2006). Cross sectional design was used because it is considered to be useful for descriptive purposes and for determination of relationship between variables (Babbie, 1990). In light of the above description, using the cross section design has enabled this study to be effective in terms of financial and time resources. It also encouraged the effective interaction between the researcher and respondents during focus group discussions as the study concentrates on gathering the information/data concerning the persisting needs of members of the groups and come out with priorities which can address the available problems.

1.3.3.2 Sampling Techniques

The survey involved administration of 40 questionnaires, among those 30 to the household of Solya ward beekeepers and 10 were assigned to other community members in Solya ward who were randomly selected to obtain the required sample.The random sampling technique used to get these ten household was multi stage sampling whereby in getting the first household out of ten the pen was thrown in sky between the households which are in opposite direction to each other, then the household in the direction in which the pen points when fall down was taken as starting household, from there it followed counting household in that direction where in every five household the fifth one was chosen and assigned the questionnaire. The same procedure was followed until when all ten questionnaires accomplished.

This technique was opted as it is simple and helps to reduce the possibility of getting similar information in case where there arehouseholds live close to each other. Purposive sampling was done to select technical people as key informants e.g. extension officer, community development officer, Ward and village executive

officers and NGOs. This enabled the researcher to have adequate information on problems or challenges which hinder improvement of bee products in the study area.

1.3.3.3 Data Collection Methods

In this study both primary and secondary data were collected using different methods. This process was done using participatory methodologies in gathering the information relevant to the community. The participatory method and tools were adopted when carrying out this exercise where the combination of some participatory tools was adopted for the purpose of getting reliable information relevant to this assessment. The methods used to collect the data were documentary review, Focus group discussion, and observation. The first method involved gathering information regarding the community through reviewing various documents/reports from Village executive offices (VEOs) i.e. village profile, bylaws and resources allocation plan. From ward extension staff information like community economic activities were reviewed. The information reviewed in district natural resource office include land use plan, environmental conservation policy. World vision was the only NGO in this area and from its office based at Solya village semiannual and annual reports were reviewed.

The second method involved development of structured questionnaires which were distributed to 40 community members for the purpose of collecting information asked in research questions. Focus Group discussion and key informants interview involved meeting with village, ward leaders and staff from government and organization within the community area. The process also involved the joint meeting with the beekeepers whereby through participatory method they managed to identify

some problems they face and prioritized them, they gave out different options for solving their problems. This method is appreciated for its usefulness in prompting community participation in solving challenges/problems in their day to day life within their environment.

1.3.3.3.1 Questionnaire

Questionnaire is one of the primary data collection method used in this study interchangeably with interview method. This was used to acquire information related to individual beekeepers, techniques used in beekeeping and market.

1.3.3.3.2 Observation

This is a qualitative data gathering method that requires direct observation of an activity behavior, relationship, phenomena network or process in field. Under this study the observation of physical available resources has been of great assistance in the field and has enabled interpretation and linkage of data obtained from other methods. Through this method, the researcher visited the field to assess activities of the group, available potentials which have positive impact to the activities of the group, challenges which impair them as well. Through this process group members managed to see and make their own decision on areas for improvement in relation to their case**.**

1.3.3.3.3 Focus Group Discussion

Study focus group discussion was also used to get some data which were very crucial in undertaking this assessment. The group members discussed their needs in small groups whereby each group responded the same questions which were in the check

list to keep them on track during the discussion. Focus group discussion is very appropriate in needs assessment as it gives very important insights directly from participants, creates interaction among the participants and come up with collective ideas/views which can provide detailed information about the issue under discussion.

1.3.3.3.4 Records Review

Under this method written materials such as group reports, district environmental policy, status of beekeeping reports in Tanzania, bee policy were reviewed to obtain other information and data concerning the study problem. This was done purposely to study different reports or information on bee keeping issues.

1.3.3.4 Data Analysis Methods

Descriptive analysis was used in the survey that involved describing the common underlying characteristics of data (Arlene et al 1985).In quantitative research, descriptive analysis involves arranging the data into a frequency distribution in groups each value into categories from low to high. If it is a normal distribution, then most of the values will fall towards the center of the distribution and decrease in frequency further out from the center. The two most important descriptive statistics of a normal distribution are the mean and the standard deviation. The mean is a measure of central tendency (in addition to the median and mode) and the standard deviation is a measure of dispersion (in addition to the range variance).

Due to the nature of this study descriptive method was mostly used as this enabled to have data for monitoring and evaluation of the project where analysis of data from this survey has been easily compiled through the Statistical Package for the Social

Sciences (SPSS). Hence all the quantitative data were analyzed using the SPSS, while the qualitative data generated from other methods used in data collection like documentary review, observation and focus group discussion were analyzed using non statistical methods “explanation building” techniques which involves attempting to build relationship and implications from observed phenomenon.

1.4 CNA Findings

1.4.1 Description of the Sample

Beekeepers is among the income generating groups from Solya ward which are engaging in beekeeping as it is easier to operate. Previously they were operating as individual beekeepers but recently they have decided to work as the group so as to join their efforts in accessing different services which can enable them to improve production in bees. The total number of members in this group is 40, females are 16 and males are 24 in number. In working as the group they set the conditions and one of them is that every member must have beehive(s) at his/her farm. Currently most of the members in the group have more than one beehive and they also own 50 others donated by one NGO in the area after seeing their initiatives in environmental protection. All beehives are hanged and they have bees where they normally start honey harvesting in dry season i.e. from June to September each year.

They do not have stable market for this product as they normally sell their honey in raw, packaged in used plastic containers/bottles of mineral water or cooking oil. One litre of honey is sold between 3000 and 5000 Tsh. The market of the produced honey depends much on customers who pass along the Singida-Dodoma high way while on

transit to Shinyanga, Mwanza, Dar-es-Salaam and nearby countries of Rwanda, Burundi and Congo DRC. Other customers are middlemen from Arusha and Dar-es-Salaam who come to the villages during the harvesting season to collect the raw honey which is sold cheaply by beekeepers. The processors take the honey back to their places for further processing and sell one litre at a price of Tsh10, 000 - 15,000.

In addition to beekeeping, this group mobilizes the community members from within their villages and nearby villages to engage in environmental conservation. They believe that beekeeping is not possible without conserving or maintaining the environment especially the natural vegetation and water sources. To achieve this they work also with villages environmental committees to ensure that other community members also participate in maintaining and conserving the natural vegetation within their areas.

The group network with the Manyoni District council through the District natural resources office which has one person specialized in beekeeping. This office provides the necessary technical advice on beekeeping industry particularly identification of potential areas for beekeeping and linking beekeepers with other stakeholders especially providers of important inputs like beehives. World vision Tanzania through its programme called Kilimatinde ADP is one of the keypartners who work with this group to promote environment conservation and beekeeping in the area. This organization has supported beekeepers to access improved beehives and it has offered several training on beekeeping to various beekeepers including this one from Solya ward. World vision has good reputation in this community as it encourages participatory approach in planning, implementing and monitoring of

different community interventions. Hence this group and others in the community enjoy working with World Vision in various social and economic development activities.

In the course of probing more information, questionnaires were assigned to individuals whereby their responses were analyzed. The purpose of this analysis was to get insights on the participants (beekeepers) main income sources, bee products improvement techniques, market and obstacles for market of bee products. The following are the findings revealed from the analysis of the respondents' answers.

1.4.1.1 Main Sources of Income

According to the respondents, 52.50% of beekeepers in Solya ward depend on beekeeping as their main source of income. During the focus group discussion participants also said that honey is harvested twice a year while other common crops for this area like groundnuts, sesame, maize and sunflower are harvested once per year. They also pointed out that honey is much depended as their main source of income because it can be stored for long time and storage cost is less compared to other crops like maize which need chemicals to store. They added that "Management of bees is cheap compared to animals and crop plants which require extensive monitoring and supervision". Also in the area there is good potential for bee keeping as there is vegetation which acts as a good habitat for bees.

The government at local level in collaboration with District natural resource office has put bylaws to ensure that reserved areas are not invaded for other human activities like farming or animal grazing. The main economic activity which is

allowed in those reserved areas is beekeeping, i.e. there is a special area in this place reserved for bee keeping only and also community members do the same in their areas which are not used for farming/livestock keeping activities.

This opens up an opportunity for those who are interested in honey to invest as their role is to ensure that they maintain the natural vegetation and/or natural trees which attracts bees. They also revealed that materials for making beehives are easily available where majority of people can afford buying them from local suppliers. The government and other stakeholders in the area have taken some steps to supply the improved beehives to beekeepers to enable them to increase production after seeing the great potential for beekeeping in this area. The respond of community on this has been positive and attract majority to engage in beekeeping as one of the activity which contribute to the house hold income.

1.4.1.2 Drought

Solya ward also is challenged by inadequate rainfalls where by the maximum rainfall per year is 400-700mm. Despite having this small amount of rainfall range, it is unreliable or unpredictable as in some years it delays and cause effects to the crops. In response to this challenge community members in the area have adopted crops which are tolerant to drought like sunflower, sorghum, millet and groundnuts, though sometimes they also fail to mature with very minimal and delayed rainfalls. In a situation like this, the little crops harvested are mainly used as the source of food in the household where sometimes they are even not enough to meet the family food requirements throughout the year. It is only few (27.5%) who sell for cash.

So community members in this area have to look for other sources of income and food within their area. Some engage in illegal businesses like selling of charcoal which has been banned by the government because of destructing the environment. Other mechanism includes selling of domestic animals (20%) like chicken which are popular in this area. Majority sells and uses harvested honey as their source of income and food respectively during normal and drought periods. Since beekeeping is among the potentials readily available in this area and some community members relies on it as their main source of income; there is a need of improving the bee products. This will ultimately increase the quality and shelf life of products like honey.

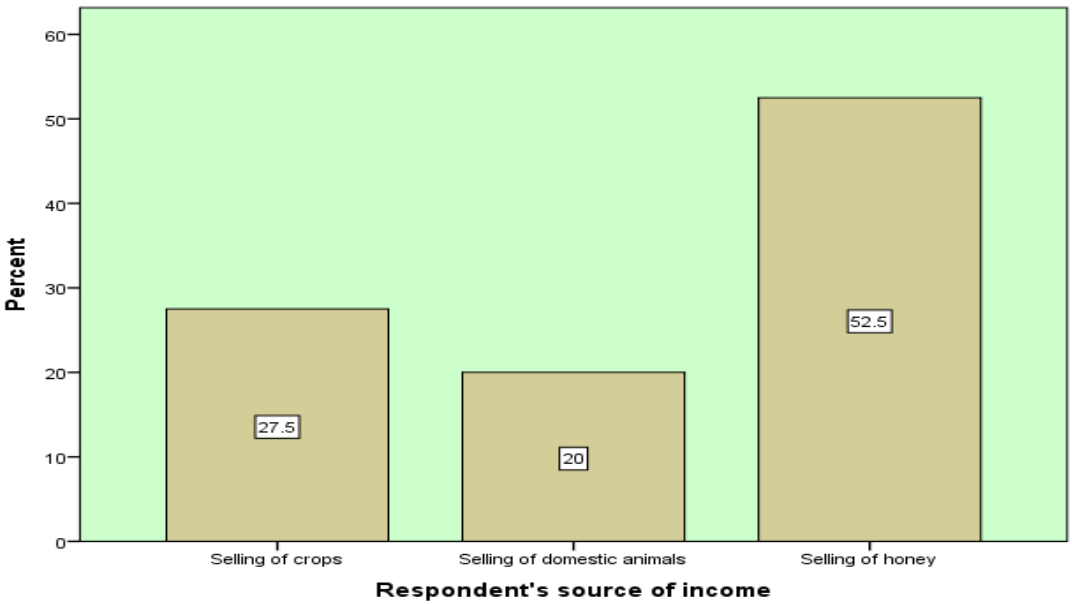

Figure 1.1: Respondents Source of Income

Source: CAN 2013

From this community members will be in a good position of getting adequate income for meeting other social needs like health and education for their children. When

shelf life of the product is improved it means will stay longer hence enable people to use it even in future. In areas where there is no reliable income and food sources, initiatives for adding value and improving the shelf life of whatever small amount obtained for current and future use is vital.

1.4.1.2.1 Inadequate Knowledge and Skills on Improvement of Quality of Bee Products (Honey)

It was identified that most of the beekeepers have inadequate knowledge and skills on honey value addition particularly processing and packaging of honey. Most of the training offered to Solya ward beekeepers concentrated on environmental conservation and management of beehives. At the ward level there is no any expert who is specialized in beekeeping hence they depend on one expert who is based at district level. In collaboration with the local NGO in the area which is World vision this expert has managed to train beekeepers on appropriate bee keeping techniques, where by little or no emphasize has been placed on improving bee products as an attempt to increase the shelf life and attract market for products like honey.

This is justified by 57.50% of respondents who said that they lack proper skills on processing and packaging of honey despite knowing that well processed and packaged honey can be sold at higher prices twice or thrice the raw and unpacked one. Most of their customers buy the unprocessed honey and offer little cash which just enables them to meet their basic needs for a short time. This has been discouraging especially when they go in towns and find the same product (honey) sold at high prices because of being well processed and packaged.

1.4.1.2.2 Shortage of Facilities for Improving Bee Products

Beekeepers from Solya ward apart from lacking knowledge and skills on honey processing and packaging, they do not have appropriate facilities for honey harvesting processing and packaging. Quality of honey depends also on method used for harvesting, Solya ward beekeepers due to lack of appropriate kits for honey harvesting use a lot of smoke which increase the possibility of contaminating the honey and also majority of bees die in this process. Facilities for extraction and processing of honey after harvesting is a challenge to most of beekeepers as they use worn out pieces of clothes to extract the honey from combs.

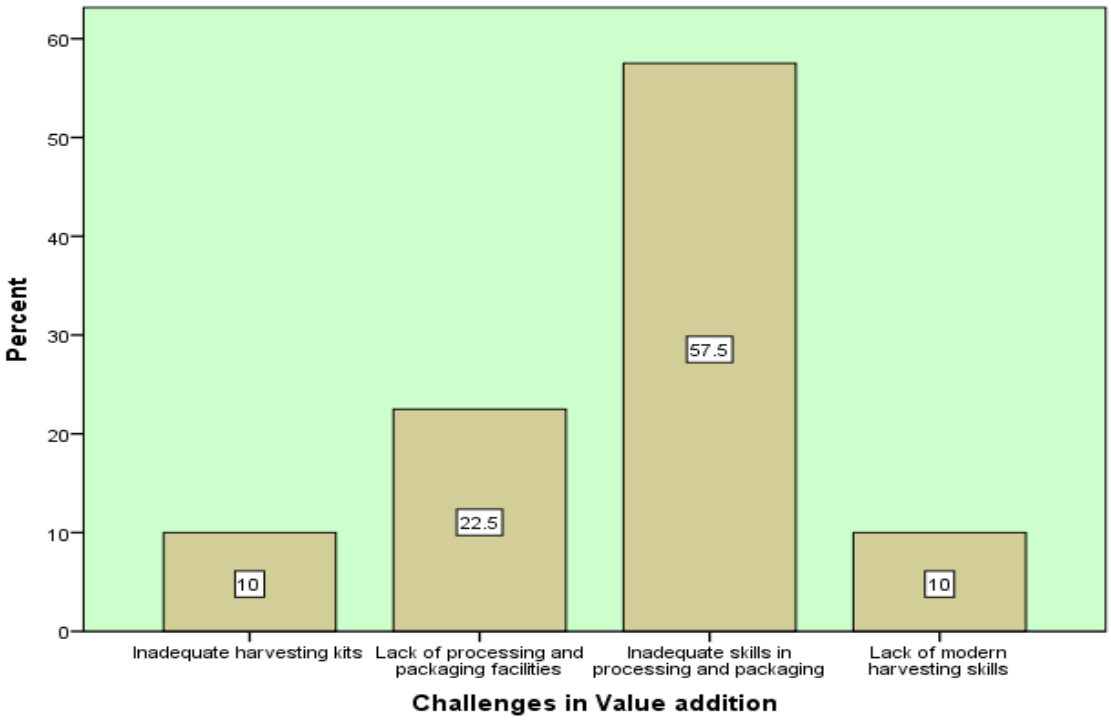

Figure 1.2: Challenges in Value Addition (source: CAN 2013)

This process become very tedious, time consuming and at the same time a lot of honey is lost. The little honey processed through this way contains a lot of remains like pieces of clothes, dead bees' body parts and other particles which all together

contribute in altering the quality of honey. There is a need to expose/orient beekeepers on appropriate facilities for honey harvesting, processing and packaging which all together contribute in assuring quality of bee products.

1.4.1.2.3 Unreliable Customers for Bee Products

The main customers for honey from Solya ward are individual community members and retailers who constitute 42.50% of buyers respectively who offers little amount of money to producers. Some of these individuals buy small quantities for domestic use and in most cases for medicinal purposes. The retailers include some petty business people and kiosks vendors who after buying repack in small containers of used mineral water and bottles ready for reselling. These retailers depend on customers particularly travelers who pass along the high way. Sometimes also these small sellers/retailers get penalties from local authorities especially health for selling products with poor hygiene and sanitation status. These cases contribute in reduction of honey buyers and sellers in the area. The relevant authorities in this area like government through health and community economic development departments have urged beekeepers to improve their products so that they can enjoy good prices from various customers.

The government at district level has plans every year to send potential beekeepers with their bee products to the farmers' exhibitions locally known as "Nane Nane" purposely to enable the groups to showcase their products for marketing opportunities. The other market opportunity is hotels and tourist centres which need this product but hygienically well processed and packaged. However Solya ward beekeepers haven't utilize this opportunity due to poor presentation of theirproducts.

Therefore provision of knowledge and skills to beekeepers on how to improve the quality of their bee products will encourage majority of people to engage in this business as they will be confident on market issues and free from penalties by authorities who have the responsibility of ensuring the quality of products supplied to the market for human consumption. Community members during the discussion commented that in Solya ward there are many kiosks which are managed by youth as part of their employment so once honey products improved they will become potential customers to ensure it reaches final consumers.

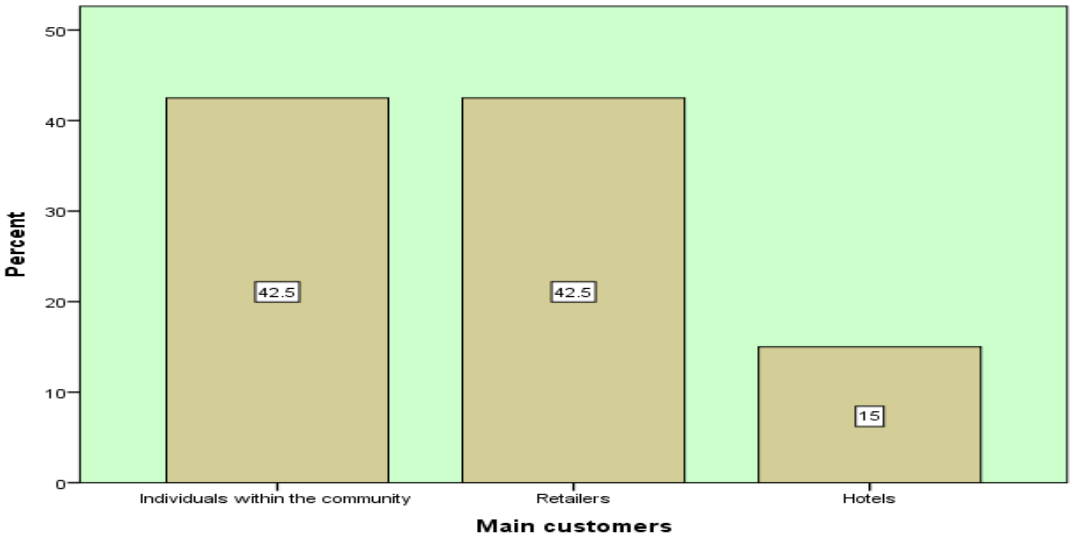

Figure 1.3 Main Customers of Honey at Solya Ward

Source: CNA 2013

1.4.1.2.4 Market Challenges

Many products produced in rural or urban areas face various challenges in an attempt to access or reach markets. The challenges may be those associated with the product directly or the indirect one. Challenges associated with the product are those related quality, form and general outlook of the product. The other challenges which impair

the market of the product are the indirect one which include transport facilities that sometimes the product failed to reach the market due to shortage of transport to move the product from production centers to market place(s).Lack of appropriate transport facilities for specific products sometimes impair the quality of a product and make it rejected in the market. For the case of Solya ward, 67.5% ofbeekeepers declared that the main factor which hinder the market of their products particular honey is poor outlook or presentation as once honey is harvested it is packed in buckets and other used containers. No further processing is done and once product like this sent to the market it fetches little prices and penalties from relevant authorities no matter how original it is.

A product which is not well processed and packed tempt some customers to comment that it is of low quality originally and accept the one which is well processed, packed and labeled believing that it is of high quality despite the fact that it may be fake sometimes. Processing and packaging enables the products to be arranged in different sizes or quantities for easier transportation to various destinations as bulkiness of products are reduced by the same process (processing and packaging). This process also helps to remove some remains in raw product which may alter its quality and bring contamination/deterioration. Processing and packaging of any product apart from improving quality, it increases shelf life and make the product more appealing to customers.

Processing and packaging of products has been a challenge to many local producers due to lack of appropriate knowledge, skills and facilities for doing the same. This has left the room to middle men who act in between and offer little prices to primary

producers and leave super profit to those who attempt to add value just by changing the form of the product through processing and packaging. Processing and packaging is part of value addition to products where value added products tend to fetch better prices in the market than non-value added products.

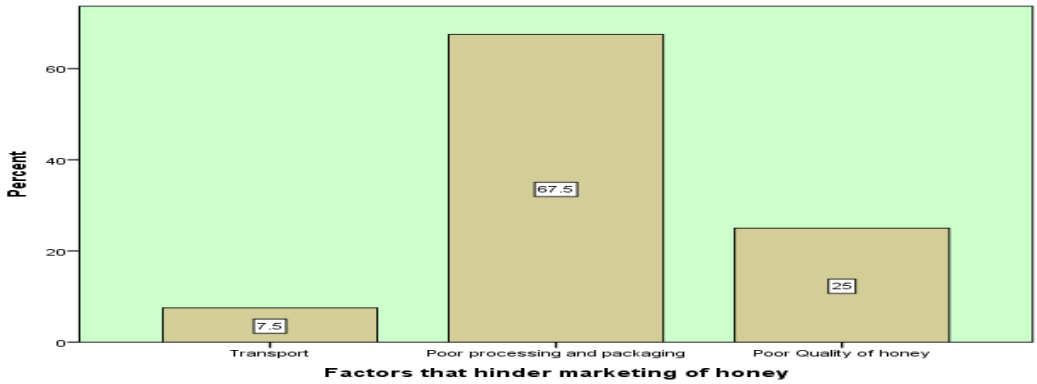

Figure 1.4 Factors that hinder marketing of Honey in Solya ward

Source: CAN 2013

1.5 Community Needs Prioritization/Leveling of Needs

Prioritization of community needs was done using pairwise ranking method as it is very simple and quick to apply in ranking problems or challenges, projects, resources identified/mentioned by the community according to their weight or intensity. Ranking enabled community members to decide what the most important intervention to deal with first is. When valuable resources are involved, those with loudest voices who are often the most powerful tend to be heard and get their way. Furthermore, each person has a natural bias toward own concerns and areas of interest. It is therefore important that when communities are making important decisions about resource use, a method for making these decisions is used that gives all involved a chance to have their views heard (Russell T at al 2008).

Table 1.1: Pairwise Ranking Summary for the Beekeeping Group from Solya Ward

	Harvesting kits	**Processing & packaging skills**	**Processing & packing facilities**	**Market**	**Capital**	**Modern beehives**	**Environment cons.**	**Score**	**Rank**
Harvesting kits		Processing & packaging skills	Harvesting kits	Market	Harvesting kits	Modern beehives	Environment cons.	**5**	**4**
Processing & packaging skills	Processing & packaging skills		Processing & packaging skills	Processing & packaging skills	Processing & packaging skills	Processing & packaging skills	Processing & packaging skills	**12**	**1**
Processing & packing facilities	Processing & packing facilities	Processing & packaging skills		Processing & packing facilities	Processing & packing facilities	Modern beehives	Processing & packing facilities	**7**	**2**
Market	Harvesting kits	Processing & packaging skills	-		Market	Market	Environment cons.	**3**	**7**
Capital	Harvesting kits	Processing & packaging skills	Processing & packing facilities	Capital		Modern beehives	Capital	**4**	**6**
Modern beehives	Modern beehives	Processing & packaging skills	Processing & packing facilities	Modern beehives	Capital		Modern beehives	**6**	**3**
Environment conservation	Harvesting kits	Processing & packaging skills	Processing & packing facilities	Market	Capital	-		**3**	**7**
Total								**40**	

Source: Solya ward Beekeepers needs assessment

1.5 Conclusion

From the above it can be concluded that the need for this community of beekeepers from Solyaward is on processing and packaging of their honey. The validity of this need is supported by the fact tha Manyoni District which Solya Ward is found has a great beekeeping potential. According to the Tanzania national Beekeeping Programme report (2001) Manyoni district have the potential of producing 8000 tons of honey. However this potential has never fully utilized.

Based on above facts, findings from Solya ward beekeepers and prioritized needs the researcher proposed to introduce a project which will focus on improving bee products i.e honey processing and packaging so as to enable the beekeepers to utilize properly the available resources/potentials (honey) in increasing their income. This will give them skills on processing and packaging of honey so as to attract market. This will also enable them to have diversified sources of income as from honey processing they can get beeswax which has a good market as well.

The skills which will be obtained in the project will be applied also in other products produced in the area like sunflower seeds where the same community members are selling seeds instead of processed and packed sunflower oil. In most cases profit is not well realized in raw materials but rather in products obtained from raw materials. Therefore any attempt to process primary raw materials is an initiative to call for industries which increase the employment to individuals and country at large. For that case implementing the project of improving the quality of bee products means a step to establish small scale industries which are highly needed to absorb the majority of people in both rural and urban areas with not employment.

CHAPTER TWO

2.0 PROBLEM IDENTIFICATION

2.1Background to Research Problem

In Tanzania bee keeping is practiced in different parts of the country especially in rural areas where there is a lot of vegetation which acts as habitat for bees. Districts which have been identified to have high potential for bee keeping include Kahama, Mpanda, Sikonge, Urambo, Nzega, Tabora, Chunya, Manyoni and Bukombe. These Districts collectively are supposed or estimated to produce 52,000 tons of honey per year but they only produce 7,800tons of honey per year (National Beekeeping Programme, 2001).

Low production is contributed by many factors which include technology used in production, processing, packaging (i.e. post-harvest handling), and lack of appropriate information on market and/or entrepreneurial skills. While considering this low production the demand for honey as food and ingredients in various food and medicine is getting high. It is estimated that 50% of honey produced in our country is sold locally for making local brews, 10% is used as industrial honey in confectioneries and pharmaceutical industries (Mapolu, 2005).Apart from this market, there are other potential unexploited markets in large towns, hotels, airports and tourist centres. The condition to win this market is that, a product must be well packed in proper packaging materials.Wax is another product of bees which is used in making candles and batiks but very small quantity is consumed for this purpose.

In most cases the demand for honey and beeswax in the global market is very high while at the same time the demand for Tanzanian honey and beeswax outweigh the

supply. Tanzanian honey and beeswax is very competitive in the global market due to its quality. For example in the year 1991, Tanzania honey won by 100% the quality test for organic honey in UK. The quality control in terms of other factors such as “HMF”, Color, taste, viscosity and aroma needs legal directives that will have to be observed by all people handling the honey before it reaches the consumer (URT 1998). Despite of having a honey which is of high quality, majority of beekeepers who are in rural areas have not enjoyed this because their bee products like honey cannot reach those internal and external markets. Most of the honey produced in rural areas is packed and stored in used glass and plastic bottles which had been used initially for hard and soft drinks with their original labels removed.

2.2 Problem Statement

It is an obvious fact that in Tanzania the majority of community members who live in areas with great potential for beekeeping use this as their main source of income. Honey form the very important nutrition component when used as food and it has also the medicinal value for treating different diseases. During times of food shortage beekeepers from rural areas used honey as their copying mechanism by exchanging it to get other food items like maize, beans and meat for family consumption. Not only this but also as it applies to farmers or other livestock keepers; beekeepers sell their products like honey to meet other social needs like paying school fees and uniforms for their children, building houses, hospital bills and other necessary expenses. Despite this contribution honey production in rural areas suffers several challenges like lack of reliable market, knowledge and skills among the producers on harvesting, processing, packaging and labeling.

Beekeepers from Solya ward have tried their best to secure the common place for beekeeping and also individuals within the group have hanged beehives nearby their homes to attract bees.From these beehives they harvest honey twice a year, however this has unable to improve their living condition as expected. Majority of this honey is still sold to the individuals within the community and part is sold to middlemen cheaply who send it to town where these buyers from town pack, label it properly and sell at high prices which give them good profit compared to buying price. As the result of this, beekeepers who are the original producers of honey have remained poor and unable to develop this business.

Several initiatives have been done to improve bees sector in Tanzania particularly in rural areas however these initiatives have focused on few areas in the sector. Major efforts has been on production i.e. bee keeping techniques which include apiary preparation and harvesting. Few initiatives have been done to improve the internal and external market of honey and this has focused much on theoretical training of beekeepers on marketing and exposures to some few successfully producers. Some natural resource institutions like Tanzania Wildlife Research Institute (TAWIRI) has done a lot to influence for policy change in order to favor bee production in the country. This has born some significant fruits because at least in most of the mentioned District with potentials for beekeeping, there have been special reserved areas for beekeeping, Solyaward being among of the wards with these reserved areas.

This has made most of the beekeepers including those from Solya ward to limit themselves in primary production only and leave the component of market to other

actors who in many years have been gaining super profit from bee products in the expense of individual beekeepers from rural areas. Beekeepers from Solya are not aware of the harvesting techniques, processing, packaging, labeling and general marketing of honey. Beekeepers from Solyaward are lacking some important skills on honey processing, packaging and labeling. Not only these but also they lack necessary facilities for doing this task starting from harvesting.The challenges and problems mentioned here needs to be adequately addressed by establishing a project which will expose Solya beekeepers to different skills on honey harvesting, processing and packaging to enable them to improve their income from bee keeping.

2.3 Project Description

The project title is "Organizing Solya ward beekeepers to generate income from bee products". The project is implemented in Solya ward, Manyoni District, Singida Region in Central part of Tanzania.Manyoni District is bordered to the North by Singida Rural and Singida Urban Districts, to the East by the Dodoma Region, to the South by the Iringa Region, to the Southwest by Mbeya Region and to the West by Tabora Region.The District (Manyoni) has the total population of 296,763 out of these males are 146,030 and females are 150,733, the average household size is 5 (NBS 2012). Solya ward is located 20 km from Manyoni districtsub town.

2.2.1 Target Community

Community members from Solya ward started beekeeping several year ago. They used to use the traditional means of beekeeping which involves the use of tree logs and other local materials as beehives. Most of the group members reside in Solya ward which is 20km from Manyoni town. Formerly they were doing beekeeping as

an individual, but later on they were mobilized by one NGO in the area called World Vision through its area development programme which operates in Kilimatinde division. In year 2013 the group decided also to engage in environmental conservation which goes together with beekeeping. This is when World Vision introduced a programme called FMNR. Majority of beekeepers in the group has several beehives and harvest more than once a year but they could not realize significant income from selling of honey because they were facing several challenges in this business.

During the discussion with the group several problems were mentioned that hinder them to achieve their development objectives. The curiosity of this group is to alleviate poverty using the existing resources which for their case is beekeeping. The intended project describes a participatory local project aimed at improving the productivity of bees for income generation at Solya ward, Manyoni District in Tanzania. Bee products like honey have a great potential to contribute in rural livelihood.

Lack of appropriate knowledge, skills, and facilities for honey harvesting, processing, packaging and labeling hinder the market and growth in this sector. The project will be implemented by the group of 40 beekeepers through the support from World Vision Tanzania under her programme called Kilimatinde Area Development Programme and the researcher. The group will receive training to address the above mentioned limiting challenges, and also will use the resources at their exposure to achieve their objectives. The overall objective of the project is to contribute in income poverty reduction through bee products. The targeted beekeepers from Solya

ward will receive training on honey harvesting, processing, packaging, labeling and marketing.

Every participating member has beehive(s) for honey production. In enhancing participation of Solya ward beekeepers group, participatory methods have been employed. Members from the group have participated in all steps of developing this project, external experts have just played the role of facilitating the process starting from community needs assessment stage, implementation and evaluation. Through this the group has managed to develop the project model of their own choice, monitoring and management structures.

2.2.2 Stakeholders

As in many other projects, there are varieties of stakeholders which have interest and or influence over this project. The key stakeholders involved in this project were beekeepers themselves who are the direct beneficiaries. The process was not limited only to these stakeholders, but also the indirect beneficiaries were involved due to their contribution/interest in the project. The direct beneficiaries (Solya beekeepers) will benefit from this project by having better living standard as the result of income which will be generated from selling quality honey which is well processed and packaged in a way which attracts customers.The indirect beneficiaries for this project is the entire community of Solya ward which will benefit from the project outcome as it will impart some learning to them on different aspects e.g marketing, products value addition and/or poverty alleviation strategies using local available resources.

World Vision Tanzania through Kilimatinde area development programme as the indirect stakeholder in this project will contribute through supporting capacity building to group members in terms of technical training and access to honey processing machines. SIDO - Dodoma will be very supportive in offering the training especially on honey processing, packaging, labeling and marketing. The other stakeholder is Manyoni District council (Natural Resource Office) which is foreseeing all issues related to natural resources in the area.

In summary the stakeholders which were jointly identified by group members include;

i. Manyoni District Council (Natural Resource office)
ii. SIDO
iii. World Vision Tanzania (Kilimatinde Area Development Programme)
iv. Kilimatinde and Solya villages' councils.
v. Consumers (Kilimtinde hospital, secondary and nursing schools in the area)
vi. Kiosks retailers

2.2.3 Project Goals

The project goal is contribute inimproving the income of Solya ward community members. Before introducing this project, beekeepers from Solya ward were producing honey just for family consumption. They thought that beekeeping is just a local business and products like honey are merely for domestic use. While having this understanding some middle men took the advantage and start buying their raw honey cheaply.

Table 2.1: Stakeholders' Analysis and their Impact in the Project

S/N	Stakeholder	Participation	Evaluation	Impact	Rate	Plan
1	Solya ward beekeepers group	Implementers of honey processing, packaging and labeling.	High	Will be involved in beekeeping and honey processing, packaging & labeling.	+	To have them involved in the entire project cycle in way which is very participatory.
2	Manyoni District Council (Natural Resource & community development departments)	Advisory and technical support	High	Translating different policies which provide opportunity to beekeepers	+	Have been encouraged to participate also in monitoring the group and provide technical support on policy issues.
3	SIDO	Market linkage and entrepreneurship skills.	High	Technical training on honey processing, packaging, labeling and marketing.	+	Have been consulted for training the group on entrepreneurship and business skills (BDS)
4	World Vision Tanzania (Kilimatinde Area Development Programme & FMNR Project)	Promoting income generating groups at grass root level.	High	Facilitating/sponsoring capacity building sessions to beekeepers.	+	Have been contacted to support training on group formation and environmental conservation.
5	Kilimatinde village council	Provision of the enabling environment for the local income generating groups to operate.	High	Foreseeing the environmental protection bylaws.	+	Have been contacted to provide space for this group to operate their activities and meetings.
6	Kiosks retailers.	Advertisement of the bee products e.g. honey at local level.	medium	Primary sellers of bee products at local level e.g. honey	+	Have been advised to promote the products of beekeepers at their kiosks.

Currently Solya ward beekeepers group have proper plans for harvesting, processing and packaging their honey ready for local and external market. They are now aware of the quality of the honey demanded for both internal and external market so their current struggle is to ensure they consistently meet this. They have realized in the previous years some middle men from towns who used to buy their crude/raw honey were gaining super profits in their expense, hence they have agreed to ensure that their honey is in a form and quality which attract more consumers/customers.

2.2.3.1 Project Objectives (general and specific objectives)

The goal of the project is to contribute in improving the income of Solya ward community members.

2.2.3.2 General Objective

To improve the quality of honey produced so as to increase the income of community members from Solya which will ultimately improve their living standards by December 2014.

2.2.3.3 Specific Objectives

i. Strengthen Solya ward beekeepers capacity in honey value addition
ii. Strengthen Solya ward beekeepers capacity in improved beekeeping techniques.
iii. Ensure honey produced through this project has access to reliable markets.

2.3 Host Organization Profile

World Vision Tanzania (WVT) is a Christian relief, development and advocacy Non-Governmental Organization (NGO). It started its operations in United Republic

of Tanzania in 1981, assisting all people regardless of tribe, religion and ethnicity. The population of United Republic of Tanzania is 44,928,923and out of these 3.3 million are impacted by the work of WVT, including 1.2 million children. WVT facilitates Programmes through five zones in 13 out of 30 regions in the country. Currently this organization hast 62 Area Development Programmes, 6 Government grants and 53 Private Non Sponsorship projects. Priority focus areas in these Programmes are Livelihoods; Health, Nutrition and WASH; Education; and Spiritual Development, Protection and Justice for Children. Livelihood is its leading priority area of focus because agriculture is the mainstay of economy in Tanzania.

2.3.1 Vision

World Vision Tanzania being the organization which its main focus is on childrenhas the vision which states; “Our vision for every child, life in all its fullness; our prayer for every heart the will to make it so”.

2.3.2 Mission

World Vision is an international partnership of Christians whose mission is to follow the Lord and Savior Jesus Christ in working with the poor and oppressed to promote human transformation, seek justice and bear witness to the good news of the kingdom of God.

2.3.3 Activities of the Organization

In implementing its activities at grass root level World Vision uses an empowerment approach known as TEAM (Tanzania Empowerment ADP Model). Under this approach this organization works with individual community members and groups in

promoting transformation development in households.Through TEAM, WVT plays a facilitation role for a empowering development approach whereby;

i. Communities are guided to take responsibility for their own lives, and stop waiting for the government, World Vision and other donors to provide services.
ii. WVT have stopped service delivery approach that leads to dependency and commit to an empowerment approach that enhances household economic capacity.
iii. The focus on community empowerment and transformation are carried out through progressive individuals (creative, innovative and early adaptors) organized in Community Producer Groups (CPGs) and Commercial Villages (CVs)
iv. WVT is promoting a system for commercial farming (Market Led Agriculture), climate change adaptation activities and multiple value chains.
v. WVT is facilitating communities to establish their own safety nets and creation of a development fund to provide for their own social services.
vi. WVT in partnership with Churches is promoting interventions that can transform the minds and hearts of individuals, families and communities to take care of children, especially the most vulnerable.
vii. WVT is partnering with Vision Fund Tanzania (a microfinance institution) in view of supporting farmers to access financial support to implement profitable agriculture and livestock production enterprises.
viii. WVT is focusing on a maximum of 3 programming sectors which built on a livelihood platform. Examples of these sectors include Agriculture (Crop &

Livestock production,) Health & nutrition and education.

Under the TEAM approach, and according to the World Vision Development Programme Approach, the ADP facilitates community and local stakeholders to conduct a joint analysis, planning and fundraising processes and also build the capacity of local stakeholders to implement and manage shared interventions and projects. WVT stress on, and use its Secure the Future (STF) and The Market-Led Agriculture Production (MLAP) initiatives to ensure active participation of a wide stakeholder enquiry and implementation of cluster-level scale landscape assessment and management.

2.3.4 World Vision Organizational Structure (attached as appendix)

Table 2.2 Organization SWOT Analysis (Host organization)

STRENGTH	WEAKNESSES
i. The presence of promising livelihood improvement practices in WV Tanzania such as the Secure the Future (STF), Market Led Agriculture (MLA) initiatives.	i. Dependency syndrome among the community members which World Vision work with as previously the organisation was providing free services and material things to them.
ii. The deliberate effort and strategy by WVT to build networks and external engagement (UN bodies, donors, SOs, sponsors, bi-&multi-lateral bodies, etc) to leverage resources and influence.	ii. WVT is a non-profit making organization hence it depends from donors in running most of its operations.
iii. WVT Board demonstrates a deep commitment, focus and support to the WVT Ministry.	iii. Weak knowledge management, operational research, documentation of evidence based programming.
iv. WVT has technical expertise that are used to strengthen programming	iv. WVT has not taken full advantage of Information & Communication Technology infrastructure (fiber

	optic)
v. WVT has good reputation in the community due to having programmes or projects which are community based.	v. Inadequate emphasis on integration of ministry lines, to bring benefits across the programme e.g. Poor integration of advocacy and gender in programmes design and implementation.
OPPORTUNITIES	**THREATS**
i. Existence of networks, coalitions and regional bodies for partnership with WVT e.g. Church Apex body, child protection coalition, EAC, Policy forum, TEMNET, etc	i. Global financial crisis as most of the WVT financial resources are coming from external donors and/or agencies. i.e. Donor dependency
ii. Availability of natural resources e.g. land in areas where WVT works encourage the organization to mobilise community members to explore them.	ii. Possibility of emergence of major disasters as a result of climate change and reliance on rain-fed agriculture
iii. Existence of MFIs e.g. SEDA/VFT which are committed to serve rural people encourages World Vision also to promote Micro Enterprise Development (MED) programs in rural areas.	iii. Traditional belief, harmful cultural practices e.g. Female genital mutilation early marriages, attitude towards albinism, witchcraft, superstitions and increase in child labour in income generating activities e.g. mining areas.

2.3.6 Roles of the MCED Student in the Project

In this project the major responsibility of the MCED student is to foresee the overall plan and implementations. In summary the descriptions of the MCED student in the project are as stipulated below;

i. Work with group leaders to conduct project monitoring and evaluation.

ii. Collaborate with the group leaders to search potential expert(s) who will train

group members on specific areas in honey processing and packaging.

iii. To facilitate the groups in linking and networking with other stakeholders and CBOs through group leaders.

iv. To facilitate the group and CBO groups' members in documentation and replication of best practises for others to learn.

v. To support the group with technical skills in developing their constitution.

vi. . To provide technical skills to groups members on designing of labels and establishment of operation centre.

vii. Provide consultant services to the CBO on the group formation and coordination.

2.3.7 Roles of the CBO in the Project

The host organisation has been very active in supporting this project by playing the following roles;

i. Funds for training, monitoring, purchasing of honey harvesting kits and processing machines

ii. Transport to the field

iii. In collaboration with Manyoni District Council,host organization (WVT) provided technical staff for supporting monitoring and evaluation

iv. Advisory support and capacity building on project implementation, monitoring and evaluation.

CHAPTER THREE

3.0 LITERATURE REVIEW

3.1 Introduction

In this study literature review is divided into three parts which include; theoretical literature describing the theory behind beekeeping industry. The second part isempirical literature narrating work by other researchers on same project in other parts indicating the approach used, outcomes, experiences, lessons learnt and their similarity and relevance in relation to Solya ward beekeepers group. The third part is analysis of policy issues which relates to this project. Different literature affiliated to this project e.g. books, professional journals, internet sites, reports from government and Institutions/organizations dealing with bees and/or bees products processing were referred to gather relevant information.

3.2 Theoretical Literature

In Tanzania and other parts of the World particularly rural areas, beekeeping is very popular and it plays major roles in community economic development and environmental conservation. Primarily it acts as food e.g honey which is so delicious and on the other have beekeeping promotes development of industries as it provides raw materials for making wax, candle and lubricants and medicine (Mwakatobe, 2001). Beekeeping also has been major sources of employment and income in both rural and urban areas whereby according to National Beekeeping Programme report 2001, the sector generates up to US $ 1.7 million per year from selling products like honey and beeswax.

The same report estimates that about two million people from rural areas are employed by this sector which also helps in improving biodiversity and increase crop production through pollination. The production of bee products was higher during the colonial and early independence period than current and it was among the important non-wood products from the forests with a higher contribution to the country GDP and International trade (Kihwele 1991).

Tanzania was an important source of beeswax during the Germany colonial period (Ntenga, 1976). The production of beeswax from Tanzania increased from 320 to 905 tons during 1906 to 1952. In the year 1996/97 period, the annual exports dropped to 359 tons of beeswax and 2.46 tons of honey (Tanzania Customs Department, 1997). In 1984 the World honey export amounting 270,000 tons of which 60% came from the tropics (Seegeren 1996).

3.2.1Beekeeping Potential in Tanzania

Tanzania like other African country has large potential for beekeeping. The country has 38.8 million ha of forest and woodland which are ideal for developing beekeeping industry (Ministry of Natural Resource and Tourism report 2012). More than 80,000 hectares of the gazetted forest reserves consist of forest plantations that are suitable for beekeeping. The mangrove forests of mainland Tanzania that consist of about 115,500 ha are also valuable as bee fodder (Mwakatobe 2001). High potential of for beekeeping is also available in areas with potentials for cultivation of crops like sunflower, green beans, coffee, coconut and sisal. However in areas with tobacco cultivation, there is also the potential for beekeeping but these plants impair the quality of honey due to nicotine contamination. The major responsibility of the

MCED student was to foresee the overall plan and implementations.

Table 3.1: District with Great Potential of Honey Production

District	Potential in Tons
Manyoni	8000
Mpanda	8,000
Lindi	8000
Sikonge	6000
Urambo	6000
Songea	6000
Chunya	6000
Bukombe	5000
Tabora	5000
Nzega	4000
Kahama	4000
Kondoa	3000
Kiteto	2000

Source: National Bee Programme, 2001

According to Mwakatobe and Mlingwa (2005), the above potential has not well utilised due to various challenges which include

i. Poor quality of bee products; major constraints in this part have been inadequate skills/knowledge to apply improved technologies, use of inappropriate technology in harvesting, processing, storage and packaging and poor storage of products.

ii. Low production of bee products which is contributed bypoor use and access to improved production technologies. Increased loss of beekeeping areas due to actions like bushfires and invasion of reserved areas and forests for human activities like Agriculture, construction and illegal hunting. Others are inadequate and ineffective extension services and statistical information to

guide plans and operations.

iii. Inadequate marketing of bee product**,** whereby most of beekeepers do not have access to markets; also in some rural areas where honey is produced there is challenge of reliable transport due to poor infrastructures. Lack of market information and entrepreneurship skills also has remained the challenge to beekeeping industry in rural areas.

3.2.2 Beekeeping at Household Level

In many countries including Tanzania, beekeeping has been considered as family business where men do harvesting, while women and children do honey extraction and processing. However this is not always the case as women in particular can successfully use beekeeping as a livelihood enterprise (Jones, R. 2000). Beekeeping can be located around the farm household, it does not require excessive labor and time to manage as bees do the majority of the work. People do not have to travel far to tender the enterprise and it can be a ready source of cash in times of need as bee products can be sold to neighbors and local markets (Hilmi,M. 2003).

3.2.3 Bee Products Contribution

3.2.3.1 Honey

3.2.3.1.1 Dietary Contribution

According to definition by O'Toole, C. 1999, honey is the natural sweet substance, produced by *Apismellifera* bees from the nectar of plants or from secretions of living parts of plants, or excretions of plant-sucking insects on the living parts of plants, which the bees collect, transform by combining with specific substances of their own, deposit, dehydrate, store and leave in honeycombs toripen and mature. Honey

is a useful source of high carbohydrate food and commonly contains a rich diversity of minerals, vitamins and others. All these add nutritional variety to human diets (FAO 2009). In additional to that honey provides for improved physical performance, resistance to fatigue and improved mental efficiency (FAO, 2006).The flavor of honey is best retained in foods that are not heated, such as salad dressings and sauces and ice creams.

Table 3.2: Nutritional Components of Various Bee Products

	Components and Weight in %				
Product	Water	Protein	Fat	Carbohydrates	Ash
Honey	17-21	0.4	0	79-83	0.1
Pollen	25 => 11	22	5	31	3
Bee bread	20 => 14	20	3	24 - 35	3
Royal jelly	67	11	6	9	1

‘ => ‘ refers to the moisture content after drying

Source: CTA. 2005

Apart from the above ingredients, honey also consists of a mixture of sugars, mostly glucose and fructose (White, 1975). In addition to water which is usually 17-20 percent, honey contains very small amounts of other substances which include minerals, vitamins, and amino acids. A minor, but important component of most honey is pollen. Pollen is carried to the bees’ nest (hive) and stored inside it quite separately from nectar, but a few pollen grains find their way into nectar, and eventually into honey.

Pollen consists of around 30 percent protein, including all the essential amino acids, a full spectrum of vitamins and minerals, lipids, trace elements, hormone precursors, enzymes, vitamins, carbohydrates and fatty acids, flavonoids and carotenoids, and many minor constituents, depending upon which plants the bees have been foraging. The pollen in honey can be identified using a microscope, and gives a guide to the plants from which bees has been collecting nectar and pollen. Pollen is also harvested for other reasons than human nutrition (McGregor, S.E. 1976) e.g. for use in plant breeding programmes, pollination, storage and subsequent feeding to bees in times of scarcity, for use in the study of allergic responses such as hay fever, and increasingly for monitoring for environmental pollution most especially for the presence of heavy metals or residues.

Other components include hydroxymethylfufural (HMF), a breakdown product of fructose (one of the main sugars in honey) that is formed slowly and naturally during the storage of honey, and much more quickly when honey is heated (Gonnet et al 1989). Enzymes are present in very small quantities, but may still have a nutritional importance in the human diet. The enzymes are very sensitive to overheating (above 35 °C) or storage at too high temperature (Sawyer 1988) Honey also is acidic with a pH within the range 3.7-4.5. Honey also do ferment, whereby the main factors which cause fermentation in honey are high moisture content (above 20%), temperature and yeast count (greater than 10/gram) (Gonnet et al 1989).

Honey that has started to ferment can be used to make products like beer, wine or vinegar. It is generally known that honey is sweet but its sweetness depends on fructose and acidity contents. Also honey, especially when rich in fructose, is very

hygroscopic i.e. it absorbs moisture from the air when the container is not closed. This may lead to an increase in water content and possible fermentation. For this reason is it important that honey is always stored in containers with tight fitting lids (Crane 1980).

3.2.3.1.2 Honey in Medicine

Due to having a healing effect, honey is used also to make medicines for colds and flu when mixed with aspirin (Kaal J. 1991). Honey is also used as a dressing for wounds whereby in some places honey has created a strong unique market because of its medicinal value (Riches H 2001).

3.2.3.1.3 Honey in Soap and Cosmetics

Honey is incorporated in making shampoos and soaps in industries. Honey cleansers, face packs and hand cream are examples of many possible products which can be made from honey (White E 1995).

3.2.3.2 Beeswax

Beeswax is the creamy coloured substance used by bees to build the comb that forms the structure of their nest. Very pure beeswax is white, but the presence of pollen and other substances cause it to become yellow (Battershill et al 1996). It is produced by all species of honey bees and has various uses as follows;

3.2.3.2.1 Making of Cosmetics, Soaps and Ointments

Beeswax is one of the most valuable bee products with multiple uses ranging from small scale to large scale industries. The beeswax of top quality can be used to make fine soap, shampoos, skin ointments and cosmetics (Bradbear, N J. 2004). If used

this way, it is possible for beeswax from just one bee colony to generate more income than from all the honey harvested from the same hive. However it is important to note that rigorously clean, careful, neat and attractive packaging is essential for success with these value-added products.

3.2.3.2.1.1 Making of Batik

Batik is a craft traditionally known and practiced in many developing countries, whereby pictures or patterns are created on material by dyeing it while selectively applying or removing layers of beeswax to create patterns (Ntenga, et al 1991).

3.2.3.2.1.2 Candle Making

Candle is another product which can be made from beeswax though as of recent because of expensiveness of wax people use other materials like silicon moulds to make candles of various sizes, shapes and patterns (Millington, D. 1992). Before starting candle production, consider if it is not more income generating to use the wax for making ointments or other more expensive products. The local price of candles produced from paraffin wax is often very low, and it will be a waste to make beeswax candles if they are to be sold at the same low price (Furness, 1977).

3.2.3.2.1.3 Furniture Polish

Beeswax make the best polish for any wood. The simplest recipe for polish is to mix beeswax with suitable solvent such as white spirit or turpentine (White, E.C. 1993).

3.2.4 Honey Bees

Previously the honey bees species identified were very few and these include *Apismellifera, Apiscerana, Apisflorea and Apisdorsata* (Ruttner, 1988). Due to their

importance in various parts of the World honeybees have been among the most studied insects. Recently a number of new honey bees species in the genus *Apis* have been recorded for science which include *Apisandreniformis, Apisbinghami, Apisbreviligula, Apiscerana, Apisdorsata, Apisflorea, Apiskoschevnikovi, Apislaboriosa, Apismellifera, Apisnigrocincta and Apisnuluensis (*Michener 2001)

3.2.4.1 Apismellifera

This honeybee species is indigenous to Africa, Europe and Middle East. However as of current it has been introduced to other parts of the Word such as America, Australia and many other parts. As the result of this introduction, Argentina, China and Mexico have the largest honey industries in the World. Studies indicate that there are numerous different races of *Apismellifera*which include both tropical and temperate. The Africanized honey bees in South and Central America are descended from tropical African *Apismellifera.* Different races of *Apismellifera* have different sizes of individual bees and colonies (Caron, D. 2001). In general, Apismellifera are regarded as the medium-sized honeybees, against which other species are judged as large or small. Normally Apismellifera builds their nest inside an enclosed space. The nest consists of series if parallel combs, and there are 30,000-100,000 honeybees in one colony (Winston, M. 1991).

3.2.4.1 Apiscerana

Apiscerana is indigenous to Asia between Afghanistan and Japan and it has been recently introduced to Papua New Guinea (Svensson, B. 1991). *Apiscerana* builds a nest consisting of a series of parallel combs, similar in style to *Apismellifera* and builds its nest within a cavity**.**

3.2.4.2 Apiskoschevnikovi

This is the species of honeybee which has been identified in Malaysia, in North Borneo (Kiew et al 1991). It is locally known as the red bee because bees in this species look reddish hue when clustering. The individual bees in this species are slightly larger than *Apiscerana* found in the same locality. The nests of these bees aresimilar in size and construction.

3.2.4.3 Apisnigrocincta and Apisnuluensis

The *Apisnigrocincta* and *Apisnuluensis* have been identified only in Indonesia and in Borneo respectively (Otis, 1996). Their nesting behavior is similar to *Apiscerana* and *Apiskonschevnikovi* as described above.

3.2.4.4 Apisandreniformis and Apisflorea

These are very small sized species of bees and their single comb nests are small too. Other names for bees in this species include the little honeybee and sometimes the dwarf honey bee(Aston, D et al 2004). They built a single-comb nest which usually fairly low down in bushes or in the open suspended from a branch or (for Apisflorea) surface rock. *Apisandreniformis* has been identified in South East Asia, Borneo, the Philippines and the Southern Chinese peninsula, while *Apilsflorea* is indigenous from Oman spreading southeast through Asia as far as some of the Islands of Indonesia and the Philippines. In 1985 it was identified in Sudan and latter reported in Iraq.

3.2.4.5 Apisdorsata

The bees in this species are also known as the rock bee, the giant honeybee or the

cliff bee. *Apisdorsata*is found in Afghanistan and extends to east of Bali. Its northern distribution is limited by the Himalayas (Ahmad, R. 1993). *Apisdorsata* bees are large and their nests consist of single large combs suspended form a branch, cliff or building**.**

3.2.4.6 Apisbinghamiand Apisbreviligula

These two species *Apisbinghami* and *Apisbreviligula* occurs in Sulawes in Indonesia and in the Philippines respectively. Previously they were regarded as the same species, *Apisdorsata* but recently with generic analysis allowing increasing understanding of the great diversity with the species *Apisdorsata*, these two are now regarded as separate species(Mulder, et al 1996)

3.2.4.7 Apislaboriosa

This is largest specie of the honeybees and they are found in the Himalayas (Nepal, Bhutan and China) at higher altitudes than *Apisdorsata (*Wickham, T et al2001*).Apislaboriosa* nests are similar to those of *Apisdorsata,* however *Apislaboriosa* colonies are usually found together in clusters with sometimes up to100 combs suspended from a cliff face very near to one another**.**

3.2.5 The Market of Bee Products

It is an obvious thatbee products like honey have the best market both internal and external. However this, like in plants and animal products; the World market for honey is not that much easier to enter. The challenges encountered by honey producer groups in developing countries are associated with the remoteness of producers from suppliers, traders and technical advisers, the often-small volumes of

products, and difficulties of obtaining pre-finance for honey purchase, packaging and marketing (Wainwring, D. 2002).

A major constraint is the increasing requirement for bee-products to meet international standards which among the conditions is that, honey must be certified free from chemical, antibiotic and other residues (Bradbear 2001). However, these residues are likely to be present in honey due to the use of medicines to treat honeybee diseases orfrom environmental pollution. This demand for residue-free honey opens opportunities for honey producer organizations in the poorest countries. Producers from these countries can harvest honey and beeswax that are of excellent quality, and especially now, because these products are residue-free, they can achieve good prices on world markets, if they are able to gain access.

World market access depends upon honey meeting the import criteria of the world markets, and this is where producer organizations' problems begin. Currently only five African nations are able to conform with European Community import requirements relating to antibiotic and other residues. These are Kenya, South Africa, Tanzania, Uganda and Zambia. Only four Asian countries (China, India, Taiwan and Vietnam) meet European Commission (EC) import requirements (Clauss et al 1991). Therefore this legislation denies access to EC markets for most African countries, even though chemical residues are not a problem in African honey.

Beekeepers in rural areas of Africa still harvest from stocks of wild honeybees, uncontaminated by the diseases and exotic predators that now affect bees in most other World regions. For this reason, African beekeepers do not apply medicines to

their bees and are able to harvest the residue-free honey that is currently in short supply on the world market (Ashley et al 1999).

As of current honey with any noticeable level of any antibiotic, including streptomycin, cannot be imported into the EC because no Maximum Residue Limit (MRL) has been set, even though Streptomycin is permitted in other animal products and does not represent a public health issue (Byrne D 2001). Bees for Development has undertaken research funded by the UK Department for International development (DFID) towards proving that streptomycin can occur naturally at low levels in honey, and is not necessarily a contaminant.

In short with the above standards set, persons who need to export honey are supposed to observe legislative criteria and meet them (Crane, E. 1990).Apart from having honey of high quality, most of the honey from developing countries failed to cross the international borders (Clauss, 1992). In rural areas particularly the most remote places, honey is often used as a barter commodity and can become a highly significant commodity in places isolated by war or sanctions (Crane, 1980).

3.2.6 Things to Consider in Attracting Honey Market

3.2.6.1 Packaging

In most cases majority of beekeepers and honey dealers from villages and even towns sell this product in whatever possible container available at their disposal. The most common containers used are used plastic or glass bottles of water and other drinks. This containers increases contamination and alter the quality of honey and hence poor price (Krell, R. 1996). Containers for packing honey must be light weight

and preferable transparent so that the product can be easily seen by customers. Containers made by glass can be also used for selling honey, though glass jars are heavy, breakable and cannot be stacked together when empty. Plastic containers are lighter and also stack well although in some of the places/countries they are difficult to obtain.In Tanzania honey is mostly packed in plastic containers of 5, 3 and 2 litres and sometimes glass jars of 1 litre and 0.5 litre.

3.2.6.2 Labeling

Like in other products presented for market, honey sells according to how it looks and the information given on the label (Bradbear, N. 2003).This is normally all the information that the consumer needs to help in decision making whether to buy the product or not.Consumers are curious on quality of any product they buy, so attractive information and labeling is needed. The label must indicate the exact geographical origin of the product, quantity packed, nutritional ingredients and contacts.

In summary the label should give the following information;

i. Contents: Honey.
ii. Source of the honey for example: sunflower, mixed blossom, forest honey.
iii. The country and district where it was produced.
iv. Name and address of the beekeeper.
v. The weight of honey in the container.
vi. The date of packing (or the beekeeper's own code).

3.3 Empirical Literature

Beekeeping is the most common activity in rural areas and it has been of vital importance in promoting the income of rural dwellers. In beekeeping, apart from honey, a wide range of by-products are produced which include beeswax, propolis, royal jelly and bee venom. However the above facts, much of the honey produced in most of the African countries is sold locally during harvesting season to individuals through price negotiations. It is sold unprocessed (raw form) with minimum or no packaging. While honey is taken as a local products and sold locally in most of the African communities, in some of these communities where beekeeping is done for commercial purposes it has encouraged self-resilience through the innovation of local industries associated with the production of beekeeping equipment and products (Ojwaya 2006).

Honey production requires few inputs, where by it has good cash value related to bulk and weight. Honey if well packed is easy to transport in distant markets and also if appropriately extracted and processed can be a nonperishable product providing an opportunity of being sold beyond the actual harvesting periods and hence improve the income of beekeepers (Martin Helmin et al 2011).Bees' products by their nature require on processing prior being presented for sale as this creates an opportunity for people in rural areas to learn new skills of primary processing which are very crucial in establishing small scale enterprise at local level.

Processing apart from increasing income also promotes food security and availability throughout the year. Honey production if well emphasized not only contributes to individual people income but also to the national GDP. For example according to the

report by Tanzania Customs Department (2007), Tanzania exported 359 tons of wax and 2.46 tons of honey which had the value of USD 1,019,020 and USD 2058 respectively. It is very shocking to see that despite the huge potentials of honey production this country have, still the supply of honey and other bee products in internal and external markets is low(Mapolu 2005).

A research by Mwakatobe A and Mlingwa C 2005 indicates that 50% of the honey produced in rural areas is sold cheaply in the same localities for making local brews and wine while 10% is sold for industrial purposes e.g. in confectionaries and pharmaceutical industries. Still there are other unexploited markets for honey like hotels and tourist centers. The survey by Mwakatobe and Mlingwa C 2003-2004 in 10 Regions of Tanzania namely Dar-es- salaam, Iringa, Arusha, Mbeya, Dodoma, Kilimanjaro, Shinyanga, Tabora, Morogoro and Tanga indicates most of the Tanzanian honey sold in the markets is packed in glass bottles which had been used for other items like soft & hard drinks e.g. Konyagi and rusted metal containers with leakages.

In some of these places the imported honey was well packaged, labeled and contain important information like nutritional content/value, country of origin, the batch number, the company name and its location.Most of the imported honey sold in Tanzania comes from countries like Kenya which count for 45%, Switzerland 20% Australia 17.5%. US 15% and UK 2% of all honey imports (Mwakatobe et al 2004)
The report from Ministry of Natural resources and Tourism (2007) indicate other several problems which impair the quality of honey produced in Tanzania as follows;

i. Honeybees perform their duties in two different environments, inside and outside the beehive. The foraging environment from which, honeybees collect pollen, nectar and water may be contaminated with bacterial, fungal spores, dusts and chemical residues, industrial pollutants, and hydrocarbon emissions from vehicles and naturally occurring toxins found in plants.

ii. Microorganisms and chemicals enter into honey either while bees are collecting nectar (primary source) or after the honey has been harvested (secondary source). The primary sources of microorganisms, water insoluble solids and chemicals are likely to include pollen, nectar, dust, air, flour and the honeybees themselves.

iii. The secondary sources of contamination in honey and beeswax are human, beekeeping equipment, insects, animals and water. Honey harvesters and processors of bee products may contaminate bee products with microorganisms and chemicals through mishandling, tools and containers.

Other sources of contamination include are those related to beekeeping area whereby in most cases when beehives are located near the industrial/plantation areas, there is high chance of collecting chemically contaminated pollen and nectar. These automatically affect the quality of bee products like honey and beeswax. Harvesting methods also contributes in impairing the quality of honey; as in Tanzania majority of beekeepers are not aware of appropriate methods of honey harvesting and also lack the right equipment for the same. To avoid sting by bees, majority of beekeepers do harvest honey at night forcing them to use large amounts of smoke resulting into smoky odor in honey.

Sometimes also they use contaminated equipment and chemical repellents during harvesting which in the same way contaminate the honey as well. In the same period of harvesting sometimes beekeepers can mix combs containing unripe honey, pollen and combs containing ripe honey where this increase the honey moisture content. All these practices contribute in altering the quality of produced honey as the result lead also to poor performance of this product in national and international markets (Kihwele et al 2001)

3.4 Policy review

3.3.1 The National Beekeeping Policy

This proposed project is in alignment with the United Republic of Tanzania national beekeeping policy developed in 1998.Tanzanian honey is known all over the world due to its organic nature compared to honey from other countries (MNRT, 1998). Due to its organic nature, Tanzanian honey has received a high demand in many European countries like Germany, Holland, England, Belgium and other parts of the world.

3.3.1.1 The rationale of the Policy

The formulation of the beekeeping policy has been driven by many factors like social-economic developments and environmental changes which are taking place together with macroeconomic policy reforms implemented in Tanzania. The other factor includes increased concern on environmental conservation for sustainable development of the beekeeping industry. This policy takes into account the role of inter-sectoral cooperation and coordination which will enhance sustainable

management of bee and bee fodder resources in and around agricultural farms, forests and wildlife protected areas.

3.3.1.2 The Goal and Objectives of the Policy

The national beekeeping policy is limited to its goal and objectives where by its overall goal is to enhance the contribution of the beekeeping sector to the sustainable development of Tanzania and the conservation and management of her natural resources for the benefit of present and future generations.

The objectives include;

i. Ensured sustainable existence of honeybees by maintaining and effectively managing adequate area of bee reserves.
ii. Improved quality and quantity of honey, beeswax and other bee products and ensure sustainable supply of the same.
iii. Enhance beekeeping – based national development and poverty alleviation through sustainable supply of bee products and services.
iv. Improved biodiversity, increased employment and foreign earnings through sustainable bee products industrial based development and trade.
v. Ensured ecosystem stability by practicing Integrated Pest Management and carry out EIA for investment inside or around Bee Reserves and Apiaries.
vi. Enhanced national capacity to manage and develop beekeeping sector in collaboration with other stakeholders.

However the effort of having the beekeeping policy, this sector is still encountering the following challenges;

i. Lack of adequate statistical information to guide the plans and operations for the development of beekeeping sector.

ii. Lack of effective beekeeping extension due to inadequacy personnel, finance and means of transport.

iii. Poor coordination between beekeeping and other related sectors of forestry, agriculture, wild life for cross section-issues and activities such as beekeeping extension, beekeeping in Game and Forest Reserves and bee pollination programmes for agricultural crops and IPM.

iv. Lack of legal regulation on importation and exportation of bees, bee products (except beeswax) and bee equipment has made difficulties for FBD to ensure appropriate directives and control measures to importers and exporters of bees products and equipment.

3.3.3 Strategies to Improve Beekeeping Industry According to the National Beekeeping Policy of 1998

i. Establishment and development of honey and beeswax based industries and production of different products from them (honey and beeswax) will be encouraged.

ii. To ensure sustainable supply of high quality bee products and pollination services, establishment and management of private apiaries will be encouraged.

iii. To attract investors in the production of beekeeping equipment, the provision of credit facilities will be encouraged.

iv. Royalties and other fees for bee products will be established and managed

and will be periodically adjusted to reflect their economic values.

v. Development and management of indigenous honey bees will be given special priority.

3.3.2 The SMEs Policy

The national SMEs policy which was established in year 2003 has clearly stipulated the issues which hinder the development of Small and Medium Enterprises (SMEs) in the country. Among the issues mentioned in this policy which is related to the intended project is marketing. Concerning marketing the SMEs policy states that; Sustainability of the firm depends largely on its performance in the market. Many enterprises are facing problems of marketing due to poor quality of products, poor packaging, inadequate marketing skills and stiff competition. Inadequate marketing services have been prohibiting SMEs to become competitive in local and international markets"

3.3.2.1 Policy Statement

The Government of Tanzania as per her SMEs policy is committed to facilitate/support programmes aimed at improving SMEs access to market. This will be done through the following strategies

i. Promote business linkages between large and small enterprises.

ii. Strengthen marketing agencies and institutions that support SMEs

iii. Facilitate SMEs participation in local and international markets through trade fairs and missions.

iv. Establish SMEs exhibition centres.

v. Facilitate SMEs to meet standards

vi. Facilitate training on trade issues e.g multilateral trading systems and regional trading arrangements.

vii. Facilitate SMEs benefit from government procurement needs and activities

3.4 Literature Review Summary

Several researches have been done on beekeeping however less of this has been done on bee products like honey. Most of the researches done on bees have been focusing on beekeeping, management of apiaries and increase production; little has been done to organize beekeepers in processing and packaging of bee products like honey to attract market and generate more income. Therefore this project is deliberately done to reduce the information gap on processing and packaging of bee products particularly in organizing beekeepers to generate income from processing and packaging of honey.

CHAPTER FOUR

4.0 PROJECT IMPLEMENTATION

4.1 Introduction

In this chapter, the planned project implementation and status will be explained by focusing on the products and outputs from the project, activities done to achieve the objectives, responsible persons, required resources and time schedule for accomplishment. The chapter also highlights the tentative budget for carrying out activities planned in this project. The beekeepers group from Solya ward has been dealing with beekeeping for several years before the MCED student starting to work with them, though this was not done in a way which can give them good returns.

The group had already trained on beekeeping and management of apiaries. It is expected that by the end of September 2014 the project will accomplish all activities except the monitoring and evaluation of the ongoing activities.From this project the outputs are honey processing and packaging project established, knowledge and skills on honey processing and packaging developed and constitution development. The anticipated product for this project is improvement of living standard of Solya ward beekeepers through income improvement realized from honey which is well processed and packed. The project is still going on to ensure this product is realized as the project will be evaluated in December 2014for collecting some evidences regarding the project success.

4.2 Products and Outputs

The intended product and output of this honey processing and packaging project was to acquire knowledge and skills on improving the quality of honey, training skills in

entrepreneurship and marketing so as to enable the project to produce products which meet the market demands. This will enable honey products to win the reliable and sustainable market within and outside the area. To achieve this, project has planned to accomplish the following;

i. 40 beekeepers from Solya ward have been trained on honey processing and packaging
ii. The constitution for the Solya ward beekeepers group developed
iii. 2 honey extraction machines procured and in use by the group members.
iv. Learning center with beehives (apiary) established in the field for learning appropriate methods of beekeeping.
v. 20 group members have at least 5 beehives hanged at their individual plots for honey production.
vi. Honey processing, processing and packaging centre established
vii. 40 group members are trained on marketing and entrepreneurship skills
viii. 40 group members are trained on simple book-keeping and records management.
ix. Group leaders trained on leadership and group dynamics
x. Group leaders are trained on conflict management and resolution.

4.3 Project Planning

Planning is the very essential part in undertaking any development project as it guides on how to go about in implementing, monitoring, evaluation the projects and allocation of resources being human, material or financial resources. The following steps are involved in project planning.

i. Identifying activities and sequence them for meaningful implementation
ii. Developing the schedule for implementing the activities
iii. Assessing the requirements e.g. facilities, equipment and services needed to support the implementation of activities
iv. Preparation of budget
v. Assigning the responsibilities for carrying out the activities

4.4 Implementation Plan

In the course of implementing this project various stakeholders will be involved which include Solya ward beekeepers group members, MCED student, Manyoni District council (Natural resource management and community development departments) and World Vision Tanzania Kilimatinde ADP which is a host CBO. As pointed out in planning, this project need resources which are to be contributed by World Vision Kilimatinde ADP, Solya ward beekeepers group and Kilimatinde village government. World Vision Kilimatinde ADP contributed funds for purchasing honey extraction machines, training cost and Solya ward beekeepers as the target group contributed cost for renovating the building used in honey processing and packaging.

The CED student was responsible for facilitating training and provision of advisory support in project management, group dynamics & conflict management and preparing the constitution. The student also participated in planning, implementation and monitoring of the project. The Manyoni District bee's officer provided advisory service to the project in collaboration with MCED student.Towards attaining the project objectives a number of activities were set and the core one include

community needs assessment and prioritization, training of members, preparation of the constitution,project design, monitoring and evaluation.

Table 4.1: The Details of All These is as Summarized in the Logical Framework

Logframe code	Intervention level	Summary of Objectives	Objectively Verifiable Indicators (OVIs)	Means of verification (MoV)	Assumptions
	Goal	Improved household income of community members.	Average household income among the beekeepers in Solya ward.	Survey and survey reports at the beginning and end of project.	Willingness of people to share their income status honestly.
01.00	**Objective**	Strengthen the capacity of community members in management of honey bees by end of 2014	Average income from bee products among the beneficiaries of the project in Solya ward.	Survey and survey reports at the beginning and end of project, records from sales of bee products	Willingness of people to share their income status honestly.
01.01	**Input**	Solya ward beekeepers trained on handling of honey bees.	Number of people attended the training Number of training conducted	Project progress report.	People will attend the training voluntarily.
01.01.01	Activity	Training to beekeepers on improved beehives.	Number of people trained	Training report	Group members are willing to attend the training
01.01.02	Activity	Training to beekeepers on setting of beehives in the field.	Number of people trained	Training report	Group members are willing to attend the training

01.01.03	Activity	Training to beekeepers on safe honey harvesting techniques and recommended facilities.	Number of people trained	Training report	Group members are willing to attend the training
02.00	Objectives	Strengthen the capacity of community members on post-harvest handling of honey.	Proportion of beekeepers processing honey after harvesting	Survey and survey report after at the beginning and end of the project	Willingness of beekeepers to adopt post-harvest handling techniques
02.01	**output**	Solya ward beekeepers trained on honey storage andprocessing.	Number of beekeepers knowledgeable on storage and processing.	Training reports	Readiness of beekeepers to attend the training.
02.01.01	Activity	Train beekeepers on hygiene and sanitations tips to consider when dealing with honey	Number of people trained	Training report	Group members are willing to attend the training
02.01.02	Activity	Training to beekeepers on appropriate methods and facilities for honey storage.	Number of beekeepers trained	Training report	Group members are willing to attend the training
02.01.03	Activity	Training to beekeepers on honey extraction and facilities used.	Number of beekeepers trained	Training report	Group members are willing to attend the training
02.01.04	Activity	Training to beekeepers on honey filtration	Number of beekeepers trained	Training report	Group members are willing to attend the training
02.01.05	Activity	Training to beekeepers on honey packaging and types of containers used.	Number of beekeepers trained	Training report	Group members are willing to attend the training

03.00	**Objective**	Enhance access to market for the Solya ward beekeepers' honey.	Proportion of beekeepers with access to market for their bee products.	Survey and survey report at the beginning and end of project.	Willingness of beekeepers to improve quality of their bee products
03.01	**Output**	Beekeepers group members have marketing and entrepreneurship skills.	Number of beekeepers trained on marketing and entrepreneurial skills.	Training report	Readiness of beekeepers to attend the training.
03.01.01	Activity	Training on marketing and networking skills	Number of people trained	Training report	Group members are willing to attend the training
03.01.02	Activity	Train beekeepers on branding/labeling their honey.	Number of people trained	Training report	Group members are willing to attend the training
03.01.03	Activity	Formation of honey collection, processing and packaging centre.	Number of people trained	Training report	Group members are willing to attend the training
03.01.04	Activity	Training on records keeping, simple bookkeeping and gross margin analysis.	Number of people trained	Training report	Group members are willing to attend the training
04.00	**Objective**	Solya ward beekeepers group well organized and managed.	Beekeepers have functional group for collective resource mobilization.	Survey report	Willingness and commitment of beekeepers to work as the group
04.01	**Output**	Beekeepers group leaders are knowledgeable on leaderships and group dynamic.	Number Of people knowledgeable on leadership and group dynamics.	Training report	Readiness of group members to attend capacity building sessions
04.01.01	Activity	Training on preparation of	Number of constitutions prepared	Constitution	Group members are willing

		constitution		document	to attend the training
04.01.02	Activity	Training on importance of working as the group in resource mobilization	Number of people trained	Training report	Group members are willing to attend the training
04.01.03	Activity	Training on leadership and management skills	Number of people trained	Training report	Group members are willing to attend the training
04.01.04	Activity	Training on conflict management and resolution.	Number of people trained	Training report	Group members are willing to attend the training

4.2.2 Inputs

The inputs required during the implementation of this project include human, financial and material resources. Human resources employed include group members themselves, World Vision Tanzania Kilimatinde ADP staff, local government leaders and staff from District (natural resource and community development departments) who played the technical support and advisory role.

4.2.3 Staffing pattern

As of recent the groups has no employed technical person due to lack of adequate financial resources for paying technical staff. The implementation of a project activities are done by group members themselves with the support from host organization i.e. World Vision Kilimatinde ADP which also link them with other potential experts. The MCED student also supported the group in implementation and monitoring of activities. The leadership of the group includes chairperson, vice chairperson, secretary and treasurer.

Table 4.2 Summary of Inputs Employed

Input type	Source	Purpose	Quantity	Cost
Financial resources	World Vision Tanzania, Kilimatinde ADP Solya ward group members	Procuring of honey extraction machines Payment of trainings Repairing of building for honey processing	4 1	2,000,000 1,500,000 500,000
Human resource	Group members MCED student Natural resource department officer	Participating in daily implementation and monitoring of project activities Supporting in monitoring and evaluation and advisory support Advisory support	40 1 1	Assorted Assorted Assorted
Material resource	Kilimatinde and Solya villages' government.	Provision of building and land for undertaking the project	1	

4.2.4 Project Budget

In this project the planned total budget is Tsh 4,950,000 while the actual budget was 4,450,000 Tsh. The resources and materials to implement the project were as detailed in the table below. The group members and the host organization (World Vision Kilimatinde ADP) have contributed in this budget. The procurement of honey extraction machines and payment of all facilitation allowances for the training was done by host organization. The group members contributed for renovation of the building for processing and packaging and all the cost involved in preparation of the

constitution. Cost for day to day monitoring and evaluation was done in collaboration between group members, host organization and other stakeholders.

Table 4.3: Budget Summary for the Project on Honey processing, Packaging and Labeling

S/N	Activity Scription	Budget Details	Unit Cost	Total Cost
1.	Training to group members	Budget include stationaries, facilitation allowance for 15 training sessions conducted	100,000	150,000
2.	Procument of honey extractin machines	4 honey pressing machines procured	500,000	2,000,000
3.	Rehabilitation of the building	Cost include procument of paints, labour changes etc	500,000	150,000
4.	Prepartion of the group constitution	Cost include stationaries, busfare to the district for review and registration	150,000	150,000
5.	Transport of facilitators during monitoring and evaluations	Budget include bufare and cosst for fueling the car for 4 month	200,000	800,000
TOTAL BUDGETING				**4,950,000**

4.4 Project Implementation

As of current most of the activities by the group has been accomplished leading to achievement of some objectives. The rest of the objectives are to be accomplished within this period from August to December 2014 as most of the necessary logistics for accomplishing them are in place. There is no doubt that the few remaining activities will be accomplished by the group members as they have the necessary skills for running the honey processing and packaging project. They are currently

struggling to ensure they accumulate enough honey for continuing processing and packaging throughout the year to meet the demand of their customers. To accomplish this strategy every member is struggling to increase the number of beehives in his/her plot for harvesting enough honey. The group members have the improved beehives and the local ones, they are still networking with different partners to ensure they get as many improved beehives as possible to increase the quantity of honey which can be harvested more than once per year. The group also is working with relevant government agencies like SIDO to formalize the brand/label of their product.

4.3.1 Project Implementation Report

The implementation of this project has focused on three core implementation areas which include community capacity building, actual honey processing and packaging and marketing of the produced products. At the beginning community needs assessment was done to identify the needs of beekeepers which enabled to establish this project on improvement of bee products. Activities which have been accomplished so fare are as described below;

Training on honey processing and packaging was done to orient 40 group members on equipment used, steps involved and general hygiene and sanitation tips to take when processing and packaging honey without altering the original quality. The participants were trained on proper processing, packaging and labeling of processed honey in a way which attract market. For the purpose of supporting honey processing the group has received 4 honey processing machines from World Vision which are simplify the task of extracting and filtering honey ready for packaging and

labeling. They have been oriented on the use of these machines and currently they are using them for the stated work.

The group members have been trained on constitutional preparation and managed to prepare their constitution which is in the office of District community development officer for final review and inputs before official registration by relevant authorities. In the processing of developing this constitution, group members participate fully and managed to include their views and ideas to guide in day to day operation of the project. This constitution has enabled them to open a bank account in NMB bank Manyoni Branch for depositing any cash collected by the group from selling their products or services.

The members of the group have been also trained on importance of working together in mobilizing and managing different resources as sometimes it is difficult for some people to work together and share benefits. For this to be effective people who opt to work as the group, needs to have and understand their common goal and the impact of the project should also be reflected in the lives of individuals within the group. For this case the group members were trained on how to work cooperatively so as to meet their goals as the group and individual. This has happen and enhances the cooperation among the group members in executing the tasks assigned to everyone in the group. In order to have the capacity of managing and reducing conflicts within the group, members of this group were also trained on conflict management and resolution. This enables them to work in peace and harmony in their daily activities with fewer conflicts among themselves and others who are not members of the

group.

As part from ensuring the project has access to market and market information for their products, they have been trained on key issues to consider in order to win customers. Among the things insisted were quality and appearance of final product that it needs to be well processed, packaged and labeled for customers to be attracted on. The label also should contain information of the product. Formation of honey processing centre is still on process as the group has already given the building to undertake this business however it needs some minor repairs like painting in order to be ready for being used effectively. As for current they have managed to replace some window shutters. The group also has been trained on appropriate methods for honey harvesting which are environmental friendly and makes honey free from contaminations. They were trained on equipment used in honey harvesting, timing and handling the honey soon after harvesting.

In the same period the group members were trained on management of apiaries in order to ensure bees have safe place for staying with less disturbance from human beings, animals and other harmful insects. The beehives were designed in a way which allows bees to get in and out easily for honey and waxy production. Records keeping and simple booking training has been offered to members of this group (25 beekeepers) in order to equip them with knowledge and skills on records keeping and management. The records kept by this group are sales/income from honey, members' contributions, customers and purchases of different materials required for group activities.

Despite successful accomplishment of the mentioned activities, some have not yet accomplishment due to various reasons like financial and time resources. However this doesn't mean that the activities will be abandoned but rather the group will continue implementing them as the project goes. Among the activities which are not yet accomplished but are on progress is formation of honey collection center.

The group has been given the building for this activity by village government but it needs some repairs which involve also repairing and repainting of the interior and exterior walls. The group has managed to fit some window shutters and they are still mobilizing funds for accomplishing the remained parts. The accomplishment of this will enable the group to have the common place for assembling their products and hence increase their visibility since this center is located along the high way.

The other activity which is not accomplished in this project is training on labeling and branding. This activity was supposed to be facilitated by SIDO but up to this moment it has been difficult for them (SIDO) to appear for the same(training) as their schedule is fully occupied by activities of this nature. The group proposed to engage SIDO to facilitate this because of their good reputation; accessibility and affordability in terms of cost.Training on networking skills to enhance marketing will be done by SIDO as they have experts for marketing, entrepreneurship and business development skills. This will enable the group to widen up their strategies on marketing hence more success to this project.

Table 4.4: Summary of Actual Project Implemented Activities

Project major activities	Resources	Timeframe	Responsible
Meeting with the group for action plan	Group members, stationaries	Dec 2013	MCED student
Training of 40 members on honey processing and packaging.	Group members, training resources.	June 2014	MCED, World Vision
Preparation of the constitution	Group members,	March 2014	Group members, MCED student, DCDO.
Purchase of honey extraction machine	Funds	April 2014	World Vision
Training on honey extraction	Group members,	May 2014	World vision
Training on importance of working as the group	Group members,	Dec 2013	MCED student, World Vision
Training on conflict management and resolution	Group members,	June 2014	MCED student, World Vision
Training on marketing	Group members,	June 2014	SIDO
Formation of honey processing and packaging centre	Group members,	July 2014	MCED student, group members
Training on honey harvesting	Group members,	June 2014	MCED student, DNRO
Training on management of beehives	Group members,	May 2014	World Vision.

OBJECTIVE: Improve Community Income through Honey Processing and Packaging by 2015.

Table 4.5: Project Implementation Ghantt Chart

s/n	Activities	2013	2014 Project months												2015	Resources needed	Responsible person
		Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan		
1	Meeting with the group for action plan															Group members, stationeries	MCED student & group members
2	Training on importance of working as the group															Group members, stationaries	Group members and MCED student
3	Preparation of the constitution															Group members, stationaries	MCED student, group members.
4	Training on management of beehives															Stationaries, group members.	World vision, DNRO
5	Purchase of honey extraction machine															Funds, transport	World Vision
6	Training on honey harvesting															Stationaries, group members	World vision
7	Training on honey extraction															Stationaries, group members	World vision
8	Training of 40 members on															Technical person from	World Vision

	honey processing and packaging.															SIDO	
9	Training on conflict management and resolution															Stationaries, meals, bus fares, facilitation allowances	MCED student
10	Training on marketing and entrepreneurship															Funds technical person, meals	World vision
11	Formation of honey processing and packaging centre															Funds, building/shed	Group members
12	Monitoring of the ongoing project activities															Group members, MCED student	Group members, MCED student
13	Evaluation of project activities															Consultant	Group members

CHAPTER FIVE

5.0 PROJECT PARTICIPATORY MONITORING, EVALUATION AND SUSTAINABILITY

5.1 Introduction

In projects, monitoring is a crucial and continuous process which involves routine collection of information of the ongoing activities or interventions. Monitoring helps to learn from the experiences for further improvement, promotes the accountability of the resources used and the results obtained. It creates the sense of ownership among the participants and enables them to take informed decision for the current and future. Monitoring and evaluation are two interdependent concepts in project management as monitoring set the benchmark for evaluation while evaluation also qualify or disqualify the monitoring work. Participation of all stakeholders in implementation, monitoring and evaluation, increase the chance of having a project which is sustainable hence meeting the objectives set.

5.2 Participatory Monitoring

This is a joint process of collecting and analyzing data and sharing the results in an attempt to identify and solve the challenges in a collective way. Monitoring involves field visit, review of service delivery and commodities records. Monitoring should have a communication system in which information flows in different directions among all the stakeholders involves. Participatory monitoring is also used as the best way of empowering the beneficiaries of the project in making their own decision and influences the change basing on the learning and issues noted in implementing their project(s). As the result of acknowledging the important of participatory monitoring

Solya ward beekeepers even before the start of this project were emphasized on their participation in every step of project implementation. Participation in monitoring this project is not only done by Solya beekeepers as the primary beneficiaries but also other stakeholders or indirect beneficiaries like government, host organization (World Vision) and MCED student took part in monitoring. This has enabled the project activities to continue smoothly with fewer difficulties because all challenges encountered are collectively shared for solutions.

5.2.1Monitoring Information System (MIS)

The purpose of management information system is to ensure access to complete, timely and accurate information for monitoring a project. It is designed to collect and report information on a project and project activities to enable participants to plan, monitor and evaluate the operations and performance of the project. The Solya ward beekeepers during their honey processing and packaging project were facilitated to identify/set the indicators for tracking the progress. The set indicators are being used in monitoring the achievement of the project whereby various information/data regarding the project are collected as part of monitoring using different ways like focus group discussion and observation.

Participants of the project also agreed on who is responsible for gathering the information and how often should that information be shared with the entire group members and other stakeholders as the way of giving feedback. Also the processes developed for monitoring includemechanisms to show how individual group members could identify success and challenges originating from their project. This involve having every group members to take part in day to day monitoring of project

activities/interventions, shares honestly the challenges, success and become part in finding the solution for any problem which might arise in the course of implementation. For the purpose of learning and future reference all the information revealed during project monitoring are well documented and stored in a place which can be easily accessed.

5.2.2 Participatory Monitoring Methods used to Engage Community

Solya ward beekeepers have been involved right aware from the beginning of this project. They took part in identification of the needs, prioritization, planning and implementation of the interventions. The PRA method was used to ensure all people provide their opinions regarding the project. Group discussion has been used by group members to gather different information concerning the progress of the project. The group members also collectively developed the indicators to rely on in tracking the project progress. The indicators assess the income of beekeepers and or improvement of living standards of beekeepers as the result of improving their beekeeping. The increase in income or living standards is ultimately expected to enable the project beneficiaries to improve their homes like having good houses, furniture, and other basic needs like good clothing for family members, food, and health and education expenses for their children. Established market linkages is one of the core indicators for this project as it measures the quality of product, that once the demand increase signifies that the quality of the product is accepted by majority.

The Solya ward beekeepers are committed to improve the quality of their honey through processing and packaging, hence increase in demand is the indicator that they have managed to do it in a proper way. The group members have discussed

these indicators and collection of some of the data is done continuously e.g. marketing data. The evaluation process will be participatory as well involving all stakeholders of the project. The analysis will be both qualitative and quantitative and results will be presented using tables, charts and narration to enable all participants to understand. The group members normally meet once per week every Friday to discuss their progress and review their weekly plans.

During these weekly meetings the secretary of the group presents minutes or agenda and assignments resulted from the previous meeting whereby the group members collectively discuss them, coming with solutions for the problems/challenges encountered and propose the way forward. The MCED student and sometimes bee expert from the District attend these meetings and assist on any technical issues or challenges experienced by group members and review the group plan. The MCED student used this forum also to update the group members on any new opportunity which is potential for the group progress. The MCED student in most cases participated in group meetings after every two weeks as he has other duties and also this was done purposely to let the group learn how to run their project independently using the knowledge and skills given on group management and conflict resolution.

In order to encourage active participation among the group members in monitoring and evaluation of the project, project objectives and respective indicators were defined in a participatory way during planning. The responsibilities and duties were assigned and agreed to the individual group members. The central committee is comprised of the chairperson, secretary and treasurer who are responsible for group unity and focus on goal and objective.

Table 5.0 Participatory Monitoring Plan

Objective	Activities	Indicators	Data source	Methods/tools	Responsible person	Time frame	Budget allocation
Strengthen the capacity of community members in management of honey bees by end of 2014	Training to beekeepers on improved beehives.	Number of people trained	CBO training reports	Documentary review, interview	Group members MCED student	quarterly	150,000/=
	Training to beekeepers on setting of beehives in the field.	Number of people trained	CBO training report	Documentary review	Group members	quarterly	80,000/=
	Training to beekeepers on safe honey harvesting techniques and recommended facilities.	Number of people trained	Training reports, monthly report	Interview, documentary review	Group members, MCED student.	monthly	80,000/=
Strengthen the capacity of community members on post-harvest handling of honey.	Train beekeepers on hygiene and sanitations tips to consider when dealing with honey	Number of people trained	CBO training report	Documentary review, interview	MCED student, group leaders.	Monthly	50,000/=
	Training to beekeepers on appropriate methods and facilities for honey storage.	Number of people trained	Training report	Documentary review, interview	Group members, MCED student	Monthly	60,000/=
	Training to beekeepers on honey extraction and facilities used.	Number of people trained	Training report	Documentary review, interview	MCED student, group members	Monthly	30,000/=
	Training to beekeepers on honey filtration	Number of people trained	Training report	Documentary review, interview	MCED student, SIDO	Monthly	80,000
	Training to beekeepers on honey packaging and types of containers used.	Number of people trained	Training report	Documentary review, interview	MCED student, group members	Monthly	60,000
Enhance access to market for the Solya ward beekeepers' honey	Training on marketing and networking skills	Orders pressed for honey	Group progress report	Documentary review, interview.	MCED student, group leaders	monthly	50,000
	Train beekeepers on branding/labeling their honey.	Packed honey product(s) with labels	Training report	Documentary review, observation	MCED student, group leaders	Monthly	80,0000
	Formation of honey collection, processing and packaging centre.	Collection centre	Field visit	Observation	Group members	Annually	100,000

Objective	Activities	Indicators	Data source	Methods/tools	Responsible person	Time frame	Budget allocation
		established					
	Training on records keeping, simple bookkeeping and gross margin analysis.	Records kept	Training report	Documentary review	MCED student Group leaders	weekly	60,000
Solya ward beekeepers group	Training on preparation of constitution	Constitution document in place	Group progress report	Documentary review	MCED student, group members	Semi-annually	75,000/=
	Training on importance of working as the group in resource mobilization	Number of people trained	Group progress report	Documentary review, interview	MCED student, group members	Monthly	45,000/=
	Training on leadership and management skills	Number of leaders trained	Group progress report	Interview, documentary review	Group leaders	Monthly	60,000/=
	Training on conflict management and resolution.	Number of conflicts managed	Group progress report	Interview	Group leaders	Monthly	30,000/=

Table 5.0 summarizes the activities to be monitored, type of information to be collected during monitoring and person responsible. As the above table indicated the role of monitoring the project progress is mainly done by group members themselves. This is happening simply they have participated in planning and designing the indicators for tracking the performance of the project. Most of the data are collected on monthly basis whereby the group normally meet and present the feedback for discussion. The MCED student has been there to support them on technical issues during monitoring like interpreting some monitoring results for meaningful discussion and solutions for challenges raised.

5.2 Participatory Evaluation

Evaluation can be defined as the process of gathering and analyzing data to determine whether the project is carrying out its activities as per plan and also assess the extent to which the project is meeting its stated objectives through the planned activities. Evaluation also can be defined as the systematic investigation of a worth or merit of an objective (Joy 2002). In order to have a meaningful project evaluation, all project stakeholders need to be involved right away from designing an evaluation to implementation; and this is called participatory evaluation.

Participatory evaluation give the unbiased information which help to improve the project as well as base for decision making. Stakeholders like donor can use the evaluation report to decide whether to continue or cut their investment/support to a particular project. Participants of this project will be involved in identifying relevant questions for the evaluation, planning the evaluation design, selecting appropriate measures and data collection methods. The same participants will take part in data gathering process and analysis so as to be aware of the whole process and own the evaluation results.

5.2.1 Performance Indicators

In project management indicators are quantitative or qualitative criteria for success that enables project stakeholders to measure or assess the achievement of project objectives. Performance indicators are key measures of project achievement where by every objective in a project should have indicator(s) which will be guiding in measuring success or failure during evaluation exercise. Normally these indicators

are set and defined during planning and also while setting an evaluation they are referred for preparing terms of reference (TOR) as part of evaluation design. As stated in monitoring part of this project most of the activities are monitored to ensure their achievement during day to day follow up of the project implementation, but achievement of the objectives will be measured through evaluation as they will take some time to be achieved. Not only this but also most of these indicators at objective level are measuring behavioral change among the direct and indirect project beneficiaries so people will need time to understand fully the project and develop the sense of ownership. In light of this Solya ward beekeepers have discussed and shared some key performance indicators at the objective level which will be used to measure the achievement of their project during the evaluation exercise.

Table 5.1: Performance Indicators

Goal: Improved household income of community members.

Log frame code	Intervention level	Summary of Objectives	Indicators
	Goal	Improved household income of community members.	Average household income among the beekeepers in Solya ward.
01.00	**Objective**	Strengthen the capacity of community members in management of honey bees by end of 2014	Average income from bee products among the beneficiaries of the project in Solya ward.
01.01	**Input**	Solya ward beekeepers trained on handling of honey bees.	Number of people attended the training Number of training conducted
01.01.01	Activity	Training to beekeepers on improved beehives.	Number of people trained Participants list
01.01.02	Activity	Training to beekeepers on setting of beehives in the field.	Number of people trained Number of beehives set
01.01.03	Activity	Training to beekeepers on safe honey harvesting techniques and recommended facilities.	Number of people trained

02.00	Objectives	Strengthen the capacity of community members on post-harvest handling of honey.	Proportion of beekeepers processing honey after harvesting
02.01	**Output**	Solya ward beekeepers trained on honey storage and processing.	Number of beekeepers knowledgeable on storage and processing.
02.01.01	Activity	Train beekeepers on hygiene and sanitations tips to consider when dealing with honey	Number of people trained Participants list
02.01.02	Activity	Training to beekeepers on appropriate methods and facilities for honey storage.	Number of beekeepers trained
02.01.03	Activity	Training to beekeepers on honey extraction and facilities used.	Number of beekeepers trained Number of honey extraction machines procured.
02.01.04	Activity	Training to beekeepers on honey filtration	Number of beekeepers trained
02.01.05	Activity	Training to beekeepers on honey packaging and types of containers used.	Number of beekeepers trained
03.00	**Objective**	Enhance access to market for the Solya ward beekeepers' honey.	Proportion of beekeepers with access to market for their bee products.
03.01	**Output**	Beekeepers group members have marketing and entrepreneurship skills.	Number of beekeepers trained on marketing and entrepreneurial skills.
03.01.01	Activity	Training on marketing and networking skills	Number of people trained
03.01.02	Activity	Train beekeepers on branding/labeling their honey.	Number of people trained
03.01.03	Activity	Formation of honey collection, processing and packaging centre.	Number of people trained Number of honey collection centers established.
03.01.04	Activity	Training on records keeping, simple bookkeeping and gross margin analysis.	Number of people trained Number of records kept.
04.00	**Objective**	Solya ward beekeepers group well organized and managed.	Beekeepers have functional group for collective resource mobilization.
04.01	**Output**	Beekeepers group leaders are knowledgeable on leaderships and group dynamic.	Number Of people knowledgeable on leadership and group dynamics.
04.01.01	Activity	Training on preparation of constitution	Number of constitutions prepared Participants list.
04.01.02	Activity	Training on importance of working as the group in resource mobilization	Number of people trained Number of projects done collectively as the group.
04.01.03	Activity	Training on leadership and management skills	Number of people trained
04.01.04	Activity	Training on conflict management and resolution.	Number of people trained Number of conflicts solved

5.2.2 Participatory Evaluation Methods

As defined earlier, evaluation is simply the process of gathering and analyzing the information to determine whether the project is carrying out its planned activities and the extent to which the project meeting its objectives through the set activities. Evaluation also provides learning for improving the future. In this project self-assessment method will be used to conduct progress evaluation to assess the status of the project in meeting its goal. It involved gathering the information to determine whether the participants' targets are met or not, also the impact of the activities and strategies towards the goal.

Among the self-assessment methods to be used in progress evaluation is Participatory Self Review and Planning (PSRP) developed by Heifer Project International (HPI).Through this self-evaluation/review, group members become aware of how powerful they are as a group and as individuals. PSRP is a tool that can be used at any level – the group, project partner and organization level. It is a tool that enables every participant makes action plans using the Cornerstones that provide direction and motivation to each individual.

PSRP gives chance to every participant to assess himself/herself on what went wrong, areas of weaknesses and opportunities. It based on strength, weaknesses, opportunities and threats (SWOT) analysis offering room for project components to be analyzed, ranked and gives reasons to its success or failure. This method helps to create sustainability of the group even after the MCED student or host organization have left. The rationale for choosing the Participatory Self Review and Planning as a tool for formative evaluation is due to its ability to allow all participants of the

project to actively assess the progress of their project.

Through this methodology participants will be able to identify weak and strong areas of the project and give reasons for strong and weak areas. They will review the objectives and indicators for each objective. The participants after discussing and agreeing on the objectives and indicators, then a voting process will follow where every group member is required to vote against a given objective and its set of indicators. This voting normally based on the extent to which a particular objective has been achieved. A growing tree is used to illustrate achievement level and levels are in four stages. The essence of using pictures of growing tree is to ensure even those who cannot read directly participate by seeing a picture.

Voting is done and averages calculated and results are presented to the group. Soon after the presenting the results, the members are asked to ascertain the results and have a consensus. This is to triangulate the results to see all the participants have common understanding. Thereafter the participants are asked to give reasons for the objectives which score low points and on the objectives that scored higher points. After giving the reasons, the group puts up an action plan on how to address the issues that lead to low points in given objectives. The plan shows objective, activities, when to be done, who does it, where, resources required and remarks.

Briefly this method involves focus group discussion and it has been planned to take place in December 2014. As of now the results obtained rely on information shared on weekly meetings of the group whereby in their meetings collectively they discuss challenges and propose solutions and way forward. Summative evaluation will be

also conducted at the end to collect information about the project outcomes and related processes, strategies and activities. In most cases this type of evaluation is for decision making and it ask questions like to what extent the project has met goals for change or impact, is the project sustainable and replicable, effective components and the one to improve.

Table 5.3 Project Evaluation Summary

Goal: Improved Household Income of Community Members.

Code	**Summary of objectives**	**Performance indicator**	**Target**	**Achievement**
01.00	Strengthen the capacity of community members in management of honey bees by end of 2014	Average income from bee products among the beneficiaries of the project in Solya ward.		
01.01	Solya ward beekeepers trained on handling of honey bees.	Number of training conducted	**40**	
01.01.01	Training to beekeepers on improved beehives.	Number of people trained	**40**	**25**
01.01.02	Training to beekeepers on setting of beehives in the field.	Number of beehives set	**40**	**28**
01.01.03	Training to beekeepers on safe honey harvesting techniques and recommended facilities	Number of people trained	**40**	**20**
02.00	Strengthen the capacity of community members on post-harvest handling of honey.	Proportion of beekeepers processing honey after harvesting		
02.01	Solya ward beekeepers trained on honey storage and processing.	Number of beekeepers knowledgeable on storage and processing.	**40**	
02.01.01	Train beekeepers on hygiene and sanitations tips to consider when dealing with honey	Number of people trained	**40**	**25**

Code	Summary of objectives	Performance indicator	Target	Achievement
02.01.02	Training to beekeepers on appropriate methods and facilities for honey storage.	Number of beekeepers trained	**40**	**25**
02.01.03	Training to beekeepers on honey extraction and facilities used.	Number of honey extraction machines procured.	**40**	**25**
02.01.04	Training to beekeepers on honey filtration	Number of beekeepers trained	**40**	**25**
02.01.05	Training to beekeepers on honey packaging and types of containers used.	Number of beekeepers trained	**30**	**25**
03.00	Enhance access to market for the Solya ward beekeepers' honey.	Proportion of beekeepers with access to market for their bee products.		
03.01	Beekeepers group members have marketing and entrepreneurship skills.	Number of beekeepers with knowledge and skills on marketing and entrepreneurship	**40**	**25**
03.01.01	Training on marketing and networking skills	Number of people trained	**20**	
03.01.02	Train beekeepers on branding/labeling their honey.	Number of people trained	**20**	
03.01.03	Formation of honey collection, processing and packaging centre.	Number of honey collection centers established	**1**	**1**
03.01.04	Training on records keeping, simple bookkeeping and gross margin analysis.	Number of people trained	**4**	**4**
04.00	Solya ward beekeepers group well organized and managed.	Beekeepers have functional group for collective resource mobilization.		
04.01	Beekeepers group leaders are knowledgeable on leaderships	Number Of people knowledgeable on	10	8

Code	Summary of objectives	Performance indicator	Target	Achievement
	and group dynamic.	leadership and group dynamics.		
04.01.01	Training on preparation of constitution	Number of constitutions prepared	**1**	**1**
04.01.02	Training on importance of working as the group in resource mobilization	Number of people trained	**30**	**25**
04.01.03	Training on leadership and management skills	Number of people trained	**5**	**5**
04.01.04	Training on conflict management and resolution.	Number of people trained	**5**	**5**

5.2.3 Project Sustainability

Project sustainability can be defined as the ability of the project through its beneficiaries to maintain the goal, outcomes and products including running its operations even after the external support have cut off. Sustainability of any organization depends on its strategies since its beginning. For the case of projects,elements of sustainability need to be considered right away from planning, implementing and monitoring the project. Before initiating any project the planner or originator needs to consider factors which will make the project to last longer and continuing impacting positively the lives of its beneficiaries.

For the project to be sustainable it must be first owned by beneficiaries; i.e. they need to have relevant capacity of managing it in terms of human, financial and material resources like affordable technologies and raw materials, ability to manage the results or impacts and replicate them. This project on honey processing and packaging forSolya ward beekeepers is likely to be sustainable both financially and

institutionally. First of all beneficiaries participated fully in identification and prioritization of this project among other several possible projects/interventions during the CNA. Their participation from the beginning to date is an indication of developing the sense of ownership.

The project also has invested on locally available raw materials which is honey. Majority of participants in this project own the beehives which they have an assurance of harvesting honey every year. Also they have been given a piece of land (20 acres) and 50 modern beehives as an incentive of protecting the environment. All these increase the chance of having honey throughout the year. As pointed out in literature review Manyoni District where this group belongs has big potential for beekeeping and the honey from this area is known for its quality i.e. contain less quantity of water (about 17%) compared to honey from other places. This signifies market assurance for honey produced from this area as the lower the water quantity in honey the higher the quality and the price. Management of beehives is very simple and less cost fully as any community member can keep bees to produce honey which its market can be improved by processing and packaging.

Availability of beekeepers trained and equipped with facilities is another indication of sustainability for this project. Participants of the project have been trained on management of honey bees, harvesting, extraction, processing, packaging and they are practicing the same. They have been oriented on appropriate tools for harvesting, extraction of honey and they have managed to get them ready for use. Due to this, the project will not outsource the experts and facilities for the tasks associated with honey harvesting, post harvesting handling, processing and packaging. For the case

of market for the produced products, the group members have been trained on entrepreneurship and marketing skills to consider in ensuring their product also win in the competitive market environment.

The group considers hygiene and sanitation tips from harvesting to packaging to avoid any possible contamination which might alter the quality and color of the honey. In terms of strategic geographical position,Solya ward where this group is located is along the Dodoma Singida high way which also links the large cities of Dar-es-salaam, Mwanza and Arusha. These cities are believed to have large consumers of honey e.g. hotels and tourist centers. In Solya also there are other Institutions like Kilimatinde Anglican hospital, Secondary and Nursing schools which have various buyers of quality honey. The group is using this strategic supports beekeepers geographical location as an important market opportunity for their products.

World Vision Tanzania which is the host organization/CBO for this group has the plans of linking potential income generation groups (IGAs) with different buyers through facilitating them to attend National exhibitions like NaneNane where they meet other potential producers, sellers and buyers of various products. This gives the group an opportunity to showcase their products and widen their market. Attending these exhibitions enables the group also to learn different technologies and entrepreneurial skills e.g. packaging which can enable them to improve their product. Since the group also deals with environmental protection they will continue benefiting from Manyoni District and World Vision Tanzania through the programme called Farmer Managed and Natural Regeneration (FMNR) which

initiatives as beekeeping is taken as environmental friendly project. Through this programme different initiatives are taken to support beekeepers to expand their businesses in bee keeping. The support include capacity building on bee keeping and necessary facilities related to beekeeping.

Institutionally, group also has well organized and creative leadership which can lead different innovations in local resource exploration. Since the group has the constitution and is in process of getting an official registration it will be easier for them to access loans and/or grants from government or donors for improvement of their business where necessary. Even after the phase out of World Vision which is the host organization, the group will continue receiving technical monitoring from the government extension and community economic development officers in the area as they have the role of mentoring all the income and non-income generating groups within their areas of operation. There is no doubt on this because the government experts in the area have been providing technical support to this group since the beginning of project. Financially this project will be sustainable as one liter of well processed and packaged honey is sold at a minimum price of Tsh. 10,000 while cost of producing by this group is 3500-4800. The direct production cost include purchasing of packaging materials which cost Tsh 800 per one and can be reduced up to Tsh500 if buying more than one hundred containers of one litre and half a litre.

Printing of labels, one will be Tsh 500 which is expected also to decrease after the group getting their own computer and printer as per their future plan. Based on this calculation for production cost and income from one liter of honey, it means that

after removing all direct cost for producing one litre of honey, the group is able to earn up to Tsh 5200-6500 as profit from sales of one litre of honey. Part of this profit will be shared among the group members, another part will be saved in their bank account for future use and other will be for maintaining the beehives as they will need a repair at least once per year. Production of honey is expected to increase year after year due to good strategies set in place by this group to ensure they get more improved beehives. Increase in production will ultimately increase the capacity of the group to meet demands from various customers inside and outside the area. Due to increase in number of people who prefer to use organic food materials, honey being one of them, the group is confident that the market of bee products like honey will grow as well hence becomes an opportunity to them.

The other income source for this beekeepers group is from selling the beeswax which is commonly used here for batik and candle making. In Manyoni district there is a group of women dealing with batik making which have declared to buy beeswax from Solya ward beekeepers. Batik making is growing very fast among the entrepreneurs from various parts of thecountry; therefore this as well is an opportunity for beekeepers as the market for beeswax produced while doing honey extraction, processing and packaging is assured. The group also has the future plans of establishing another project for candle making as in the whole area there is no any group which has invested on this despite the demand from different customers like churches, individuals for domestic use and decoration in various ceremonies.This will continue adding income and hence improve living condition of beekeepers as it is their current and future desire.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Introduction

This chapter summarizes the success of the project, challenges and way forward as the result of implementing the project on improving bee products(honey processing and packaging). In this part findings from the other chapters have been summarized. This part is of paramount as it gives the brief summary of the entire picture on how the project has been implemented, monitored, evaluated and the contribution/participation of beneficiaries in each stage. Apart from summarizing the whole process involved it also gives the lesson learnt, conclusion and recommendation.

In conclusion part revision of the entire work is done and coming up with summary of what has been achieved so far, challenges encountered and way forward. Since the project was on organizing beekeepers to generate income through improving bee products(honey processing and packaging), the conclusion part reflect on how the income and living standard of this beekeepers has improved as the result of the project. The part also summarizes the new techniques the direct beneficiaries and community at large have learnt as the result of implementing this project and its usefulness.

The recommendation part relies on findings obtained as the result of implementing this project. In implementation of any project there are some issues which might not go as per original plan and during day to day reflection and learning meetings they are discussed. The recommendation part is also picked from those learning and other

observations from different parts where projects of the same nature are operating. Comments from beneficiaries and other stakeholders of the project are included in this part so as to inform the future implementation or establishment of the project of the same nature.

6.2 Conclusion

The initiatives and efforts by Solya ward beekeepers and other stakeholders has resulted to a project on improving bee products(honey processing and packaging) which is improving the income of community members especially those involved in bee keeping. The participatory needs assessment indicated that the major constraint which impairs the economic development of community members from Solya ward is inadequate income despite of having various resources like land, domestic kept animals and resourceful persons. Beekeeping is among the key activity performed by majority of people in Solya but for a long time it has not changed the life of people socially and economically. During the needs assessment which was conducted in a participatory way, beekeepers opted to improve bee products through processing and packaging honey from their end so as to capture market which has been successful done.

Different literatures reviewed have supported this project as one of the important and crucial intervention which can enable rural people to enjoy the income obtained from beekeeping. Honey is among the product with good market potential within and outside the country; however there are some regulations concerning the quality of honey for export in developed countries like EU and US who are the main buyers of honey. The literatures referred indicated that most of the honey from developing

countries has failed to reach the international market due to failure in meeting the set standards despite being of the best quality. The information from different authors about the market of honey indicate that the quality of honey depends on environment or region from which it has been originated, the way it has been harvested, processed, packaged and labeled. In areas where high levels of pesticides are used in plants, it is likely to have honey which is chemically contaminated.

During harvesting, harmful practices like the use of fire contaminate the honey. It has been noted that in most parts of rural areas normally honey is processed locally without observing the hygiene and sanitation issues, and then packed in used containers of water, alcohols like bear and Konyagi without having any label. All these impairs the quality of honey and hence failed to reach the external markets where could fetch good prices. In order to have good market for honey, quality need to be insisted from production to market; that producers need to look for areas which are free from chemical contamination, use appropriate methods for harvesting, processing and packaging in clean and labeled containers. The Solya ward keepers have been trained and are observing this in their project of processing and packaging quality honey for competitive prices.

The project for improving bee products(honey processing and packaging) was selected by Solya ward beekeepers as it enable them to exploit on the potential they have like favorable environment for beekeeping. Also this project to them is very easier and less cost full in management and it gives good returns in terms of cash and nutrition. When compared to other products from crops and animals in this area, honey is the most payable one as one litre of well processed and packed honey is

sold at a price of Tsh 10,000. This has been the very payable product compared to others in the area which consumes a lot in investment but less in returns. Beekeepers have tried to compare with livestock kept like cattle, sheep and goat and found that beekeeping is more payable when done in an improved way. As for example one Kilogram of meet in this area is sold at 5,000 Tsh contrary to that of processed honey which is sold twice as much (Tsh.10, 000). For this case beekeepers have been attracted to improve the beekeeping through selling the processed and packed honey as the way of increasing their income.

The implementation of this project has been done in a participatory way where by beekeepers from Solya ward as primary beneficiaries have been active in day to day activities of the project. They managed to improve their beehives so as ensure adequate supply of honey for processing and packaging. Training received has equipped them with knowledge and skills on appropriate method of honey harvesting, processing and packaging. The group also has capable leaders who are leading the group in achieving their objectives; they have the group constitution which was developed by themselves under the consultation of district community development department and MCED student.

The group is now selling a well processed and packed honey from their own sources and the key idea now is to increase production so as to meet the demand which has been very high due to quality of this honey. The records of the group are well kept as they received training on simple record keeping. Currently most of the customers for this honey are community members from within the area and those who pass along the highway to cities like Dar-es-salamm, Mwanza and Arusha. The group need to

link with other potential buyers like hotels as this is within their strategy to include prominent customers like these. To achieve this, the group is doing market survey to identify such customers in nearby towns of Dodoma and Singida, and with time they will extend to Arusha, Mwanza and Dar-es-Salaam where it is believed to have big hotels and tourist centres which can buy honey from this group. The group will have to liaise with respective government authorities like Tanzania Bureau of Standards (TBS) and Tanzania Food and Drugs Authority (TFDA) in registering their product so as to ensure it reaches the big national and international markets which needs certification from relevant authorities.

Monitoring and evaluation for this project has been done in a participatory way involving all group members who participated in need assessment and prioritization. Their participation has enabled this project to achieve the intended objectives and enhance sustainability of the project. Solya ward beekeepers group get the opportunities to share and implement their views and ideas in this project as they have been taking part in daily implementation and monitoring of the project. In their meetings members get time for presenting the ideas of improving the ongoing activities and implementation strategies which bring the quick win of the project.

In monitoring it has been revealed that in order for the project to be sustainable strategies for increasing honey production should continue to be invested since the group is also expanding by looking more market opportunities even outside the area, the thing which is expecting also to increase demand of honey. They group is supposed to sell the honey with their brand across the East African Community and

the rest parts of the World if at all they have large production with all national and international standards for honey export met consistently.

6.3 Recommendations

Investment in improvement of bee productsis amongst the most affordable project in most of African rural areas since there are suitable areas for beekeeping and cases for bees' diseases are very rare. Beekeeping pays better than most of the activities done in rural areas as it is less laborious and management is very low because beekeeper is not responsible to feed the bees and once a beehive has been placed properly no frequent repairs. Since beekeeping is pointed out as a project which is easier to managed beekeepers need to struggle in improving the products from these bees like honey. Most of bees products especially honey from Least Developed Countries (LDCs) including Tanzania have failed to reach the international market due to failure in meeting the quality standards.

Different authorities such as government and private sector need to work together to support beekeepers to improve their products as once they managed to sell both in internal and international markets the income of people in rural areas will increase and the government will be in a good position to collect revenues from this for other development programmes. For the purpose of achieving any community project participation of community members need to be insisted from the beginning. Most of the projects initiated in the community without thorough involvement of community members have failed due to lack of ownership after withdraw of donors or supporters. Solya ward beekeepers group have managed to remain active from the beginning to date due to efforts taken in mobilizing them right away from needs

assessment. The approach used to involve community in any development interventions matters a lot as sometimes there are projects which start with top down approach. This means all the views and ideas regarding the project are coming from the top and the community as beneficiaries becomes just receivers. Projects of this nature normally collapse despite of huge resources invested in.

In this project, a lesson has been learnt that a good project should build on the available resources both human and material resources. Improvement of bee products through processing and packaging of honey has been possible due to availability of potential for beekeeping in the area as well as people who are interested in keeping bees. Project design and implementation should reflect the assessment done on needs. Designing and implementing the project which doesn't reflect what has been mentioned as the need of the target community at the beginning creates the chance of having unsuccessful project.

Also for the project to be successful owners should learn or read from different literatures how others have been fairing on the same project or the related ones in their areas. This helps to learn the success, challenges and sharpen the ideas of improving the project. During implementation of this project reference was made from various research works which has been done on beekeeping and improvement of bee products like honey. Honey is used in all parts of the World; however the market of honey is much restricted by quality standards. This has impaired most of the honey from the least developed countries to reach the international markets. To resolve this, relevant authority need to support producers to observe these standards. Close monitoring and evaluation is the key success to any project. Monitoring gives

day to day information about project progress and how it is fairing towards the achievement of goal and objectives.

Evaluation measures the impact of the project to the beneficiaries and also findings from the evaluation can be used to design or redesign of the project. Participation of Solya ward beekeepers in monitoring of theirproject has given them an exposure on how to do the same even at house hold level. It is recommended that even the projects which are initiated by the government and other stakeholders in their area should buy the same idea of involving the beneficiaries in monitoring and evaluation so as to enable them to own the whole process and hence sustainability of the project.

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APPENDICES

Appendix 1: Research questionnaire

Date of interview ……...……

Name of interview ……...……..

Location/Village …….……..

A. Age of respondent

1. 18-25
2. 26-35
3. 36-45
4. 46-55
5. > 55 ( )

B. Sex of the respondent

1. Female
2. Male ( )

C. What is your main source of income

1. Selling crops
2. Selling domestic animals
3. Honey
4. Employed ( )

D. What challenges do you face in adding value to your bee products

1. Inadequate harvesting kits
2. Lack of processing and packaging facilities
3. Inadequate skills on processing and packing
4. Lack of modern harvesting skills ( )

E. What factors hinders market of honey

1. Transport
2. Poor processing & packaging
3. Poor Quality of honey
4. Low production to meet market demand ( )

F. Who are your main customers?

1. Individuals within the community
2. Retailers
3. Hotels

G. Do you have any honey extraction machine? ( )

1.Yes

2. No

H. What method do you use in filter your honey

1. filter machine
2. piece of clothes
3. I don't filter ( )

I. Who are the main stakeholders support your in beekeeping

3. District council
4. NGO
5. TAWIRI
4. Others(Mention) ( )

…….....

J. What kind of support do you get from other stakeholders

1. Training on environment conservation

2. Training on processing & packaging
3. Training on preparation of beehives
4. Training of harvesting of honey
5. Entrepreneurship and marketing ( )

K. What kind of beehives do you use?

1. Local hives
2. Modern hives
3. Others (Mention)

L. How much many times do you harvest per year?

1. Ones per year
2. Twice per year

M. How many liters of honey do you get in one beehive per one harvest?

1. 6-10 Litres
2. 11- 15 Litres
3. 16-20 Litres

Appendix ii: Respondents' source of income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Selling of crops	11	27.5	27.5	27.5
	Selling of domestic animals	8	20.0	20.0	47.5
	Selling of honey	21	52.5	52.5	100.0
	Total	40	100.0	100.0	

Respondent's source of income

Appendix iii: Challenges faced by respondents in honey value addition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Inadequate harvesting kits	4	10.0	10.0	10.0
	Lack of processing and packaging facilities	9	22.5	22.5	32.5
	Inadequate skills in processing and packaging	23	57.5	57.5	90.0
	Lack of modern harvesting skills	4	10.0	10.0	100.0
	Total	40	100.0	100.0	

Challenges in Value addition

Appendix iv: Respondents' honey main customers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Individuals within the community	17	42.5	42.5	42.5
	Retailers	17	42.5	42.5	85.0
	Hotels	6	15.0	15.0	100.0
	Total	40	100.0	100.0	

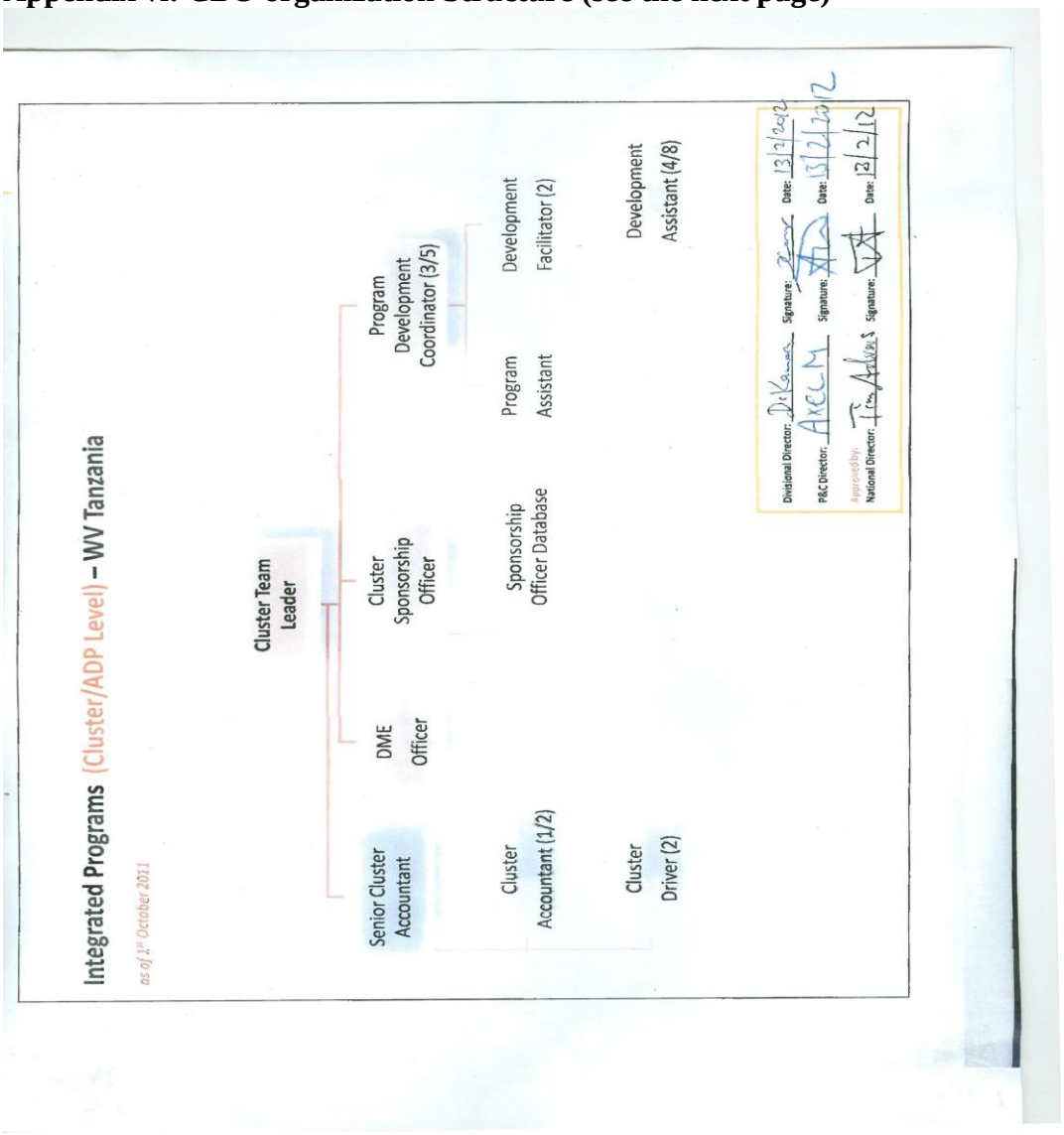
Main customers on Haney at Solya ward

Appendix v: Factors that hinder market of honey

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Transport	3	7.5	7.5	7.5
	Poor processing and packaging	27	67.5	67.5	75.0
	Poor Quality of honey	10	25.0	25.0	100.0
	Total	40	100.0	100.0	

Factors that hinder marketing of hone

Appendix vi: CBO organization Structure (see the next page)



Appendix vii: Photo of group members in Practical training on Honey extraction and processing

Appendix viii: Group members doing honey extraction and processing

Appendix ix: Processed /extracted honey flowing ready for final filtering and Packing.